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THE INTRACISTERN SERUM TREATMENT OF NEUROSYPHILIS*

BY HENRY R. VIETS, M.D.†

THE treatment of neurosyphilis by the intraspinal method, first used by Swift and Ellis in 1913, has fallen into disuse in the last ten years, the reasons for which are clear. In a considerable number of cases severe pain is experienced at the time of the treatment and often for twenty-four hours after it, presumably due to the irritating effects of the serum on the spinal nerve roots and their coverings; consequently, some patients find the method so disagreeable that they refuse further treatments. Secondly, after the series of injections, interference with the normal evacuation of the bladder and rectum is occasionally found; incontinence appears, sometimes early in the course of the treatment, but more often permanent retention is observed to have taken place, due to damage of the delicate bladder or rectal reflex mechanisms. These two factors are, perhaps, sufficient to condemn the method. Even more important, however, in eliminating the intraspinal method from general use, is the advent of other modes of therapy, many of which tend to replace the older way of treating the disease. Since 1913 there have been developed new drugs, such as tryparsamide and bismuth, as well as methods characterized by the fever or protein shock treatment. In general paresis, especially, treatment by malaria has tended to replace all other anti-specific measures.

Although these additions to neurosyphilis therapy offer reasonable chances of curing a patient with the disease, it would seem that the older method of Swift and Ellis, consisting of injecting the patient's own serum into his subarachnoid space, had been abandoned prematurely. It still gives the patient an excellent chance of complete cure of his syphilitic affection of the nervous system and in some cases is certainly the quickest and most efficient method of treating the disease that has yet been devised. Moreover, many of the irritating and painful accompaniments of the intraspinal method, with its possibilities of vesical or rectal imbalance, are now avoided, in large part, by intracisternal injections, in contradistinction to intraspinal, after the method devised by Ayer. The use of the cisterna magna as a site of injection has robbed the method of its worst features, at the same time preserving all that was good in this type of treatment.

It is the purpose of this paper to show that the intrathecal serum route still is of great value in the treatment of neurosyphilis; that intracistern serum can be given with safety in a physician's office; and that the results are as good as with other methods and often distinctly better. Although only a relatively few cases will be reported which have come under observation from the period of 1920-1930 in private practice, the general conclusions drawn are based upon many cases seen and treated at the Massachusetts General Hospital. No effort has been made to report a large series of cases, but examples of various types of neurosyphilis are given to indicate the wide applicability of the method.

CASE REPORTS

CASE I. *Meningovascular syphilis, of long duration but of moderate severity.* C. F. T., male, aged 33, was first seen in March 1920 with the following history: Initial infection in 1905, followed by local treatments and mercury by mouth. In 1909 or 1910, left-sided facial neuralgia began insidiously. The blood Wassermann test at that time was reported negative and the patient was treated, after a thorough examination of his nose and throat, by alcohol injections of the trigeminal nerve (1914-1915). These relieved his symptoms in part for three years, but the pain again returned, worse than ever. Examination of the blood and spinal fluid in 1920 indicated positive tests, as will be noted on Chart 1. Neurological examination was negative, the pupils responding quickly to both light and accommodation and the deep reflexes being present and equal. Three years of intravenous treatment with neoarsphenamine, interspersed with courses of mercury and potassium iodide failed to change the condition in the spinal fluid, although the pain was stopped, and in May 1923 the fluid contained 142 cells per cubic millimeter and the total protein was 125 milligrams per 100 cc., in addition to the positive Wassermann reaction. At this time four intracistern serum treatments were given within a period of eight weeks. There was a prompt response in the spinal fluid and by November 1923, except for a slight increase in the amount of total protein and 9 cells per cubic millimeter, the fluid appeared normal. This condition of the spinal fluid has remained unchanged through 1929, over six years after the last intracistern treatment was given. At one period, in September 1927, a positive blood Wassermann test was reported; this was quickly eliminated by a small

*From the Neurological Department, Massachusetts General Hospital.

†Viets—Assistant Neurologist, Massachusetts General Hospital. For record and address of author see "This Week's Issue," page 528.

amount of intravenous treatment. The patient, in the meantime, continued to remain well, without signs or symptoms of central nervous system syphilis. (Chart 1.)

Comment. The above report illustrates the rapidity with which intracistern treatment may be effective. The spinal fluid, positive for over three years, and which only feebly responded to intravenous treatment, was rapidly brought to normal by four intracistern treatments. It would appear that as much, if not more, was accomplished by two months of intensive treatment of this type than had been effected in three years of intravenous treatment. The change in the spinal fluid, moreover, continued without relapse, a condition unlike that which occurred in April 1920 after intravenous treatment, when a well-marked improvement in the fluid was not maintained more than a few months. Six years after the last treatment, without a return of positive serology, would seem to indicate that the patient was actually "cured" of his disease. This is particularly true when we consider the delicacy of the colloidal gold reaction, which responds quickly to any adverse conditions in the spinal fluid.

CHART 1

TREATMENT, BLOOD AND CEREBROSPINAL FLUID TESTS IN CASE I*

Date	Intravenous Treatment	Intracistern Treatment	Blood Wass'n	Cerebrospinal Fluid Wass'n	Cells	T. Protein	Colloidal Gold
1920							
March			+++				
April	8 neo-arsph.			+++	62		
May			+	+	5		0132200000
September	6 neo-arsph.		+++	+++	95		0012100000
1921							
March	6 neo-arsph.						
June			+++	+++	136	128	
July	6 neo-arsph.						
August			+++	+++	11		3332100000
November			+++	+++	80	58	0000000000
December	4 neo-arsph.						
1922							
January				+++	126	67	5544310000
March			+++	+++	128	87	0000000000
April	8 neo-arsph.						
June			+++	+++	24	61	0124542000
September				+++	90	91	1112322000
1923							
May			+	+++	142	125	1122110000
	4 neo-arsph.						
		13 c.c.		+++	34	29	1121100000
		15 c.c.		+++	45	28	0122110000
		12 c.c.		+	77	36	0122100000
		14 c.c.		+++	11	38	0000000000
November			0	0	9	54	0000000000
1924							
February			0	0	1	89	0000000000
1925							
August			0	0	1	38	0000111000
1926							
1927							
September			+++	0	0	40	1110000000
	3 neo-arsph.						
	3 tryp.						
1928							
January			+				
	6 neo-arsph.						
April			0	0	4	35	0111000000
1929							
November			0	0	0	38	0001110000

*In this, and in the subsequent charts, the Wassermann tests are indicated as strongly positive (+++), moderately positive (++) weakly positive (+) and negative (0); the cells are reported in figures per cubic millimeter, and the total protein in milligrams per 100 cubic centimeters. The Wassermann reactions are from the laboratory of the Massachusetts State Department of Public Health and the other tests from the spinal fluid laboratory, Massachusetts General Hospital.

The marked variation in the colloidal gold reaction in 1921 and 1922 was due, apparently, to our inability to standardize this delicate reaction. Subsequent tests in this case and tests in other cases are uniform and consistent with the expected findings.

CASE II. *Meningovascular neurosyphilis of short duration, but of more than moderate severity.* R. F., male, aged 37, was first seen in March 1926. The primary infection probably occurred in August 1925, on the abdomen. A few weeks later the blood Wassermann test was positive and a physician gave him seven intravenous treatments, as well as mercury by mouth. The blood Wassermann reaction became negative. Three weeks before he entered the hospital under our care he had a prolonged epileptic attack. As soon as the report was obtained on the blood and spinal fluid, he was given four intracistern serum treatments, which greatly modified the tests in the spinal fluid but failed to bring them entirely to normal. The treatment was interrupted at this time and it was necessary to substitute intravenous therapy. One more intracistern treatment, however, was given in July of the same year, at which time the tests in the spinal fluid were practically negative. A few more intravenous treatments served to clear up the blood Wassermann reaction also and by the end of the year his serology was normal. This condition continued for the next five years; in the meantime the patient was free from symptoms. (Chart 2.)

CHART 2

TREATMENT, BLOOD AND CEREBROSPINAL FLUID TESTS IN CASE II

Date	Intravenous Treatment	Intracistern Treatment	Blood Wass'n	Cerebrospinal Fluid Wass'n	Cells	T. Protein	Colloidal Gold
1926							
March			+++	+++	106	67	2222322100
	4 neo-arsph.						
		15 c.c.		+++		38	0011110000
		10 c.c.		+++	33	33	1122211000
		15 c.c.		+++	10	28	0012221100
		12 c.c.		+++		28	1112111100
April			+++	+	30	30	1223321100
May-June	6 tryp.						
July	1 neo-arsph.						
		10 c.c.		0	1	18	3210000000
September	4 neo-arsph.		++				
December			0	0	5	26	0000000000
1927							
March			0	0	0	28	1110000000
1928							
1929							
June			0	0	0	36	0112110000
1931							
November			0	0	0	28	0011000000

Comment. Although much shorter in duration than Case I, the above history illustrates again the rapidity of response to intracistern treatment in the average meningovascular case. To be noted, also, is the fact that once the spinal fluid has become negative, it remains so. One should strive, therefore, by the use of this method for a "cure" of the condition in which the serology becomes absolutely and permanently negative. Occasionally one or two treatments are necessary even after a year has elapsed since the original course.

CASE III. *Meningeal syphilis, moderately severe.* J. J., male, aged 34, was first seen in August 1926. The primary lesion occurred in 1924 and was treated locally, followed by a few intravenous treatments. In April 1926 he was treated at the Massachusetts General Hospital for severe headache and vomiting, without other symptoms or signs. The blood and spinal fluid were found positive and he was given three intracistern treatments in May and June. Four more intracistern treatments followed, in 1926, with a moderately rapid response in the spinal fluid. The patient, being free from symptoms, did not return for over a year. In 1928, two more treatments cleared up the remaining changes. Four years later the spinal fluid was completely negative and the patient was well. (Chart 3.)

Comment. Case III illustrates the use of the method in acute syphilitic meningitis occurring within two years of the primary lesion. This patient required more treatment than it had been necessary to give in either Case I or Case II. It should be noted that in March 1928, although the patient had no symptoms, the spinal fluid showed enough changes to justify more treatment.

CASE IV. *Meningovascular syphilis of long standing; clinical, but not serologic, general paresis.* J. A. H., male, aged 52, was first seen in April 1928. The condition was one of long standing, the primary lesion having occurred twenty to twenty-five years before. Except for local treatment at the time of the initial infection, no treatment was given until the patient developed a right hemiplegia and aphasia in 1927. At that time the blood Wassermann was found to be positive and his physician gave him a short course of intravenous neo-arsphenamine and intramuscular bismuth. The patient responded rapidly, but in February 1928 began to show mental symptoms suggestive of general paresis. Examina-

tion of the spinal fluid in April, however, did not bear out this diagnosis as there were no cells in the fluid, the colloidal gold reaction was practically negative and the total protein was only slightly greater than normal. It was felt, nevertheless, in view of the long-standing infection, the cerebral accident and the mental symptoms, that an intensive course of treatment, in an attempt to clear up the disease entirely, was advisable. In April four intracistern treatments were given and in October two more. The response was rapid and complete and, except for a slight rise in total protein, the spinal fluid continued to remain normal for the next two years. The patient, in the meantime, became well, both physically and mentally. (Chart 4.)

CHART 3

TREATMENT, BLOOD AND CEREBROSPINAL FLUID TESTS IN CASE III

Date	Intravenous Treatment	Intracistern Treatment	Blood Wass'n	Cerebrospinal Fluid Wass'n	Cells	T. Protein	Colloidal Gold
1926							
May			0	+++	184	111	1222343211
	1 neo-arsph.						
		10 c.c.		+++	352	78	1222232110
June	2 neo-arsph.						
		10 c.c.		+++	60	33	2233322110
		10 c.c.		+	44	27	0011000000
August	1 neo-arsph.						
		15 c.c.		+	0	22	0000000000
		11 c.c.		+	2	22	1112110000
November	1 neo-arsph.						
		10 c.c.		0	0	27	0111000000
		8 c.c.		0	2	29	1211100000
1927							
1928							
March			0	0	9	39	0122100000
	2 neo-arsph.						
		12 c.c.		0	1	24	1121100000
		10 c.c.		0	6	25	1110000000
1929							
January			0	0	2	23	0100000000
1930							
February			0	0	1	25	0000000000
1932							
February			0	0	3	28	0110000000

CHART 4

TREATMENT, BLOOD AND CEREBROSPINAL FLUID TESTS IN CASE IV

Date	Intravenous Treatment	Intracistern Treatment	Blood Wass'n	Cerebrospinal Fluid Wass'n	Cells	T. Protein	Colloidal Gold
1928							
April				+++	0	51	0110000000
	4 neo-arsph.						
		15 c.c.	+++	+	1	37	1111000000
		12 c.c.		+++	6	44	1123210000
		15 c.c.		+	3	32	1111000000
		10 c.c.		+++	2		
				+	3	49	1112110000
October	5 neo-arsph.		+				
		7 c.c.	+	0	2	29	1121100000
		8 c.c.		0	1	29	1111000000
November	3 neo-arsph.						
December			0				
1929							
May			0				
December	3 neo-arsph.		0	0	1	53	1122210000
1930							
January	3 neo-arsph.						
September			0	0	1	45	0000121000

Comment. This report illustrates another type of neurosyphilis, luetic enarteritis, with possibly some parenchymatous degeneration, not of great severity but of long standing, which also responded quickly to intracistern serum treatment. There was no meningitis, if we may judge by the small number of cells in the spinal fluid. The method is of value, therefore, in clearing up a long-standing infection and is not limited in its usefulness to meningitic syphilis.

CASE V. *Parenchymatous neurosyphilis, taboparesis.* J. L., male, aged 54, was first seen in May

1929 with symptoms indicating taboparesis. There was no history of primary infection, but the patient, with symptoms since 1927, had been given two courses of intravenous treatment. The spinal fluid examined in June, 1929, indicated a severe parenchymatous type of neurosyphilis, as well as a moderate degree of meningitis. It was felt that this was the most severely infected case that had been treated up to that time and it seemed doubtful if changes could be brought about sufficient to justify a long course of treatment. Three intracistern treatments, however, were given in June and three more in August, 1929. There was distinct improvement in all the spinal fluid tests, except the Wassermann reaction, and the well-marked changes in the colloidal gold reaction. Persistent treatment, however, succeeded in reducing these tests to a condition approaching normal. Patients with this type of infection require many more treatments than those illustrated by Cases I and II. Complete tests of the spinal fluid at the time of each injection, with a comparison with the previous tests, is of considerable value in judging the amount of treatment needed in the future.

CHART 5

TREATMENT, BLOOD AND CEREBROSPINAL FLUID TESTS IN CASE V

Date	Intravenous Treatment	Intracistern Treatment	Blood Wass'n	Cerebrospinal Fluid Wass'n	Cells	T. Protein	Colloidal Gold
1929							
June	3 neo-arsph.						
		10 c.c.		+++	24	146	5555555432
		14 c.c.		+++	18	100	5555554210
		10 c.c.		+++	10	95	5555554210
July	1 neo-arsph.						
August	2 neo-arsph.						
		10 c.c.		+++	7	67	5555555432
		10 c.c.		+++	8	69	5555433211
		8 c.c.		+++	5	65	5555422211
September	5 tryp.						
Oct.-Nov.	12 tryp.						
December			0	+++	2	48	5543332100
	3 neo-arsph.						
		10 c.c.		+++	2	45	5443332100
		8 c.c.					
		9 c.c.		+++	3	40	4443322111
1930							
January	3 neo-arsph.						
		12 c.c.		+++	0	42	4433321100
		13 c.c.		+++	2	27	4433321000
February		8 c.c.		++	3	43	4333321100
June	1 neo-arsph.	12 c.c.		+	1	38	5433322100
July	2 neo-arsph.						
		8 c.c.		0	1	40	4433322100
		8 c.c.		0	1	45	4433322110
1931							
April				0	0	45	1112332110

after three months and, in view of this response, treatment was continued. A course of intravenous tryparsamide was given at this stage and only served to slightly decrease the severity of the tests in the spinal fluid. During the latter part of 1929 and through the first six months of 1930 intracistern treatment was persisted in until the spinal fluid tests, except for the colloidal gold reaction, had become negative. The colloidal gold reaction, in the meantime, had progressively improved and we felt justified in stopping the treatment at this stage. Nearly a year later the spinal fluid was still more improved, the colloidal gold reaction having lost some of its more characteristic signs. (Chart 5.)

Comment. This patient was suffering from parenchymatous neurosyphilis of considerable severity and presumably of long duration. The evidence for general paresis, however, was not very marked clinically, although loss of deep reflexes and the presence of Argyll-Robertson pupils spoke for considerable degeneration of the central nervous system. The findings in the spinal fluid appeared to justify the clinical diagnosis, especially the large amount of protein

CASE VI. *Parenchymatous neurosyphilis, general paresis.* L. T. D., male, aged 38, was first seen in August 1929. There was a history of primary chancre in 1918, followed by intravenous treatments which left the blood Wassermann reaction negative. In 1924 the blood was again found to be positive and he was given ten more intravenous treatments. Although he appeared at first to respond well, by 1929 the patient began to have increasing nervous and mental symptoms and marked loss of weight. He showed the usual clinical signs of moderate general paresis and a spinal fluid examination made at this time bore out this diagnosis. The condition was much more severe than in any of the five cases noted above. Treatment was started in September 1929 and, in the course of a year, nineteen intracistern treatments were given. The spinal fluid was nearly normal in September, 1930. The patient did well clinically and although he still retained some of his nervous symptoms, he was in a condition to return to his occupation after two years. The tests in 1931, however, showed that there was still a slight amount of change, particularly in the Wassermann reaction, and one or two more intracistern treatments were advised. (Chart 6.)

Comment. This patient had a moderately severe general paresis with well-marked, but early,

mental changes. A long course of treatment was instituted and as time went on, it was felt that treatment should be continued in view of the response both clinically and serologically. At the end of a year the spinal fluid was practically normal, but it was feared that with so severe a case, relapse might occur. This is apparent in the spinal fluid of 1931. The relapse, however, was so slight that it would seem likely that only a small amount of additional treatment would be necessary in order to finally clear the fluid. Whether a patient with as severe an infection as this will remain normal cannot be decided at the present time. The response to treatment, however, from the serologic point of view is so good that a guarded but good prognosis can be given. This record indicates what can be done in even a fairly late case of parenchymatous neurosyphilis if the treatment is persisted in.

CHART 6

TREATMENT, BLOOD AND CEREBROSPINAL FLUID TESTS IN CASE VI

Date	Intravenous Treatment	Intracistern Treatment	Blood Wass'n	Cerebrospinal Fluid Wass'n	Cells	T. Protein	Colloidal Gold
1929							
August			+++	+++	22	89	5555555321
September	2 tryp.						
	3 neo-arsph.	8 c.c.		anti comp.	14	75	5555543221
		7 c.c.		+++	11	58	5555553321
		15 c.c.		+++	2	56	5555554210
October	7 tryp.	15 c.c.		+++	5	70	5555554321
November	2 tryp.						
December			+++	+++	5	33	5555431000
	4 neo-arsph.						
		20 c.c.		+++	1	33	5555321100
		12 c.c.					
		15 c.c.		+++	0	32	5555432110
1930							
January	3 neo-arsph.						
		13 c.c.		+++	1	37	5555432110
		15 c.c.		+++	2	36	5554321000
		10 c.c.		+++	0	33	5543321100
February	2 neo-arsph.						
		18 c.c.		+++	0	30	5443211000
		8 c.c.		+++	0	31	4433210000
March	2 neo-arsph.						
		11 c.c.		+++	0	29	5443221100
July	2 neo-arsph.						
		20 c.c.		+++	1	30	3322211000
		12 c.c.		+++	0	30	1223321000
August	2 neo-arsph.						
		10 c.c.		+++	0	29	1122210000
		10 c.c.		+++	1	29	1122110000
September	2 neo-arsph.						
		12 c.c.		+++	1	33	1112233221
		12 c.c.	0	0	0	32	1322110000
1931							
September			+ / −	+ / −	0	20	1221000000
October	1 neo-arsph.		0				

CASE VII. *Parenchymatous neurosyphilis, tabes dorsalis.* G. L. K., male, aged 34, was first seen in October 1930. The initial infection occurred in April 1923. The first nervous symptoms began in 1929 and at that time it was found that the blood Wassermann test was positive. He was given seven intravenous treatments and made a fairly good recovery. In January 1930, however, he began to show signs of increasing difficulty suggestive of tabes dorsalis. When first seen, in October, the spinal fluid indicated both a parenchymatous degenerative condition and one of meningitis. Therapy was instituted at once and in a period of nine months, fourteen intracistern treatments were given. The response in the spinal fluid was marked, but rather slow, and more treatment may be required before the patient can be considered cured. (Chart 7.)

Comment. This patient illustrates a typical uncured case of neurosyphilis of more than ten years' duration, beginning to show parenchymatous changes, as well as retaining lesions in the meninges. Response to the treatment, as usual, removed the cells from the spinal fluid rapidly. The patient, however, requires more treatment.

TECHNIQUE OF INTRACISTERN SERUM TREATMENT

Blood serum is obtained in the following manner: Fifteen minutes after intravenous injection of neoarsphenamine, 50 c.c. of blood are withdrawn in a 50 c.c. syringe, using a 19 or 20 gauge, 1 inch needle. The blood is quickly transferred to a 150 c.c. Erlenmeyer flask and allowed to stand over night, at room tempera-

ture, without moving. The blood should not be unduly agitated while transferring it from the syringe to the flask, nor should the flask be moved until the blood is firmly clotted. After a little practice, technique can be developed so that from 50 c.c. of blood 20 to 25 c.c. of serum can easily be poured off, twelve hours later, practically free from red blood corpuscles. It is helpful to have the flask sitting at a slight angle while the blood is clotting. As seldom more than 20 c.c. of serum are useful, one should not seek to obtain the last drops of serum as it is poured off, which are likely to contain red blood corpuscles. If blood has become mixed with the serum, however, it may be removed by centrifuging, a procedure which is usually unnecessary. The serum is inactivated at 56° C. for half an hour and then may be kept a number of days to a week in the ice-box. It should be warmed to body temperature before it is injected. If a portion of serum not used at a single injection is to be used again within the week, it must be inactivated a second time before injection.

CHART 7

TREATMENT, BLOOD AND CEREBROSPINAL FLUID TESTS IN CASE VII

Date	Intravenous Treatment	Intracistern Treatment	Blood Wass'n	Cerebrospinal Fluid Wass'n	Cells	T. Protein	Colloidal Gold
1930							
October			+++	+++	128	71	5544332100
	1 neo-arsph.						
		12 c.c.		+++	106	47	4332221100
November	1 neo-arsph.						
		16 c.c.		+++	4	35	1223211000
December	4 neo-arsph.						
		12 c.c.		++	3	29	1222110000
		17 c.c.		+++	1	30	1112100000
		15 c.c.		+++	4	31	1221110000
		8 c.c.		+++	3	31	1121110000
1931							
January	3 neo-arsph.						
		12 c.c.		+++	3	30	1122100000
		12 c.c.		++	10	35	1221110000
		15 c.c.		+++	0	29	0111100000
February	2 neo-arsph.						
		—		+++	2	29	1221100000
		12 c.c.		+++	0	30	1122110000
March	2 neo-arsph.						
		10 c.c.		+++	4	32	1111210000
		—		+++	1	31	0012100000
April	1 neo-arsph.						
		—		+++	2	29	0012211000
July	1 neo-arsph.						
		12 c.c.		+++	0	40	1112210000
September	1 neo-arsph.						
		12 c.c.			0	30	1110000000

The technique of puncturing the cistern is that described by Ayer[1]: "The patient is placed on the side, as if for lumbar puncture, with neck moderately flexed. Care is taken to maintain the alinement of the vertebral column to prevent scoliosis and torsion, and in cases where comparative pressure readings are important the lumbar and cisterna needles should be on the same horizontal plane. After antiseptic preparation of the skin, usually including the shaving of a little hair, and local anesthetization with procain, the thumb of the left hand is placed on the spine of the axis, and the needle inserted in the midline just above the thumb. The needle may be pushed rapidly through the skin, but should then be cautiously and guardedly forced forward and upward in line with the external auditory meatus and glabella, until the dura is pierced. If the cisterna be entered at this angle there is usually a distance of from 2.5 to 3.0 cm. between dura and medulla as shown on frozen sections; with the needle less oblique in position the distance between the walls of the cisterna becomes progressively less. Therefore, it is good practice to aim a little higher than the auditory meatus, and, if the needle strikes the occiput, to depress just enough to pass the dura at its uppermost attachment to the foramen magnum. At its entrance the same sudden 'give' is felt as in lumbar puncture.

"The needle employed is a regular lumbar puncture needle, nickeloid, 18 gauge preferred, with beveled stylet, sharp on the sides but not too sharply pointed. There is rather less variation in the depth of the tissue transversed than in the lumbar region, being in an ordinary sized adult from 4 to 5 cm., the greatest distance in the series being 6 cm. and the smallest 3.5 cm. It was found that a faint circular scratch on the needle, 6 cm. from the tip, was entirely satisfactory in judging the distance, and was preferable

to the deeper markings of the Patrick needle which tend to make its insertion a little jerky and consequently less guarded."

The cerebrospinal fluid pressure may be recorded, but this is usually unnecessary after the first puncture if 20 to 35 c.c. of fluid are removed before serum is injected. The serum is given, over a period of 10 to 15 minutes, by the gravity method, the height of the serum never being over 150 mm. above the height of the needle. The maneuver is best accomplished by attaching to the needle a small rubber tube 100 to 120 mm. in length, to the distal end of which is connected a 20 c.c. syringe with its barrel removed. By raising or lowering the syringe, filled with the serum, the rate of flow of the contents can be regulated. Strict asepsis is maintained.

After the injection the patient should lie on the table for one hour in the dorsal position, after which time he may safely, in most cases, return to his home. Patients are advised to remain quiet for twelve hours after each treatment.

DISCUSSION

The reasons for the successful results obtained with intrathecal serum therapy, especially in bringing the cerebrospinal fluid to its normal formula, are still under dispute. Various theories have been proposed to account for the phenomenon, but none are entirely satisfactory. Mott[2] considers that the traces of arsphenamine in the serum produce the favorable results, basing his conclusion on the work of Ravant, who actually injected very small doses of arsenic preparations into the subarachnoid space successfully. Schamberg and Klauder[3], on the other hand, think the effects are due to increased permeability of the meninges secondary to the irritation which the injections cause. A third theory is that antibodies set up in the blood as the result of the initial arsphenamine injection are transferred in the serum to the cerebrospinal fluid. It is possible that the two latter theories are both correct and that the irritation caused by the serum is of equal importance with the antibodies in the serum itself. A certain number of patients have received blood serum obtained without previous injection of arsphenamine and, although the changes in the spinal fluid are somewhat slower, the results are similar to those obtained by the so-called "autosalvarsanized" serum[4]. If we assume that most cases of neurosyphilis are interstitial syphilis in a chronic state and that the symptoms are due to perivascular, perineurial and perineuronal blocking by the cellular exudate, then it seems reasonable to postulate also that the patients are cured by the removal of this exudate, as well as by the spirocheticidal action of the arsphenamine. Such appears to be the main action of intracistern serum treatment.

One distinct advantage of this type of treatment is that it enables the physician to follow the progress of the treatment by watching the changes in the cerebrospinal fluid. The four tests now done upon the fluid are extremely accurate and in a well-conducted laboratory there is little variation in the technique. This is clearly shown by the progressive changes in the fluid in the patients illustrated by Charts 5 and 6. The first response is a diminution in the number of cells found in the fluid. This is closely followed by a reduction of the amount of protein. Changes in the colloidal gold reaction may appear also early in the course of treatment, followed by a progressive, continuous loss of the higher figures in the report, so that ultimately the test becomes entirely negative. The last response occurs in the Wassermann reaction, which may be greatly delayed. The latter reaction often changes, however, with an abruptness not characteristic of the other tests (Charts 5 and 6). So dependent does one become upon the tests that a slight rise in any of the figures is indication for a renewal of the treatment. This point is illustrated in Chart 4, where there was a definite increase in the amount of protein in the spinal fluid in 1929 and 1930 in spite of the fact that the other tests remained unchanged. The most satisfactory results are those in which the fluid becomes absolutely normal, as in the patient illustrated by Chart 3. It might be argued that we depend too much upon the laboratory for both diagnosis and prognosis. Experience has shown, however, that if the laboratory tests are properly done, the reports are increasingly important and, as the years go by, we become more and more dependent upon them.

The general advantages of this form of treatment are that it can be carried out entirely as an office procedure, there being practically no unfavorable reaction on the part of the patient after the injection. If given not oftener than once every two weeks, there is no depression of the general health. The root pain, so troublesome with intraspinal injections, has not occurred in our series, nor has there been any tendency to disorganize the vesical and rectal reflexes. The progressive diminution in the strength of the tests, as revealed by the repeated cerebrospinal fluid examinations, makes it possible for the physician to give to the patient assurance that his disease is being overcome; with more intelligent patients, one should not hesitate to point out the improvement noted in the spinal fluid tests based on the charts, which should be accurately kept in every case. The therapeutic aim should be to bring the spinal fluid to normal and keep it there, a result which we appear to be able to obtain in a large proportion of the cases, much to the satisfaction of both the patient and his physician.

Two classes of patients with neurosyphilis

do not respond to this method of treatment. No case of optic atrophy has been prevented from going on to blindness, even by the most strenuous course of intracistern serum treatment. Although the tests may improve, the symptom increases. Secondly, cases of general paresis do not respond to this mode of treatment, provided we are dealing with a parasyphilitic infection. It is often difficult to tell, however, whether one is dealing with true parasyphilis, especially in the early stages of the disease. From the serologic point of view the first examination of the cerebrospinal fluid in Chart 5 pointed strongly to a diagnosis of general paresis, and yet one cannot believe that this patient had the disease in view of the good results obtained by treatment. This is even more definitely so in Chart 6 and partially so in Chart 7. It is usually worth the time and expense to give a few intracistern treatments, watching the result carefully in the cerebrospinal fluid tests. If the tests do not change, or become even stronger, after a month or two, one feels justified in considering the patient as having general paresis, at which time other forms of therapy should be advised.

CONCLUSIONS

1. There are distinct advantages to the intracisternal serum method of treatment in neurosyphilis over other modes of therapy.
2. The pain and sphincter weakness, often noted after intraspinal treatment, are avoided.
3. By a careful checking of the tests in the cerebrospinal fluid each time an injection is made, the amount of treatment necessary to bring the spinal fluid to normal and the general prognosis of the case can be accurately gauged.
4. The method may be used as an office procedure, thus keeping the patient at his normal occupation.
5. The results obtained are better than with most other forms of treatment, especially in selected cases. Often rapid changes take place in the spinal fluid as the result of intracistern serum and as much is accomplished in a few months as is usually accomplished in a few years of intravenous treatment.
6. The technique is not difficult to learn, but there are distinct dangers from the method in the hands of a careless operator.
7. Treatment should be given not oftener than once in two weeks and should be continued until the spinal fluid has approached normal or is in its normal state.

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2 Mott, F. W.: Oxford Medicine, vol. 6, p. 556.
3 Schamberg, J.-F. and Klauder, J. V.: Nelson Loose-Leaf Medicine, vol. 6, p. 203.
4 Swift, H. F.: Tr. Cong. Am. Physicians & Surgeons 10:25, 1916.

ADVICES ON INFLUENZA

The National Safety Council gives rules for controlling certain diseases, including influenza as follows: "Avoid temperatures of over 70 degrees in your working or dwelling rooms. See that humidity is between 40 and 60.

"Avoid over-eating. Include plenty of milk, orange juice, leafy vegetables, eggs and salads in your diet throughout the Winter.

"See that you get the proper amount of rest and sleep every day.

"Avoid persons who cough and sneeze at you.

"See that the body is working well each day.

"Drink at least six glasses of water daily besides what liquids you use at your meals.

"Accustom your skin to changes of temperature by dressing according to the weather, and by taking cool shower baths every morning.

"If possible, arrange to get artificial sunshine through ultra-violet ray exposure during the Winter.

"If you find your throat sore or your nose running, take a teaspoonful of baking soda in a glass of water three times a day, and add more milk and oranges to your diet.

"Wash your hands with soap and hot water before each meal and keep fingers away from the mouth and nose."

If there should be any demand, it might be well for doctors to have copies of the above rules for distribution to patients or their families in simple uncomplicated cases or in advance of calling a physician.

AN INCREASE IN HOSPITAL FEES FROM INSURANCE CASES

In New York nineteen municipal and five privately owned institutions have adopted a rate of $5.50 per day, plus the usual hospital extras for treating Workmen's Compensation Insurance Cases. This is an increase of $1.00 per day from the previous general rate. This change is the result of a comprehensive survey begun recently and disclosed that a charge of $4.50 per day paid by insurance cases did not cover the cost. One other hospital has increased its rate to $6.00 per day plus extras. Before this change in rate was made the Committee met with representatives of the insurance groups and as a result it was decided that Governor Roosevelt would transmit a message to the Legislature embodying a report of his hospital problems, with the recommendations among others, that hospitals be paid costs within reasonable limits for the care of workmen's compensation cases.

NEW ENGLAND SURGICAL SOCIETY

PROSTATIC PITFALLS*

BY ARTHUR H. CROSBIE, M.D.†

THERE is no branch of surgery that I know of in which so many fatal errors can be made as in cases of urinary obstruction. We are all aware of the importance of preoperative preparation in these cases and it is largely through this understanding that the mortality of prostatectomy has been so much lowered.

I feel, however, that in this preprostatectomy stage a certain number of cases are lost that might be saved by more careful handling. The patients that die during this period never appear in the mortality statistics. Of course, they are not deaths from prostatectomy and cannot be included in such statistics, but nevertheless they are the result of the obstruction. Some of these people come to us in practically a moribund condition and are beyond any hope. On the other hand there are some who are lost through over-investigation and improper drainage that could have been saved by more conservative measures.

During the past year I have had the opportunity to observe several cases that I felt had not been given their best chance of making the grade.

Let me cite one case. A man of seventy-six entered a hospital with a history of difficult urination, extending over a period of years. He entered with acute retention. His bladder was much overdistended. He was catheterized and a large amount of very foul urine was withdrawn. The man was put on catheter drainage. At the time of entry his non-protein nitrogen was over seventy. Under drainage he improved rapidly and at the end of ten days his non-protein nitrogen had dropped to thirty-three. At this time he was cystoscoped and the opening of a diverticulum seen and also an enlarged prostate. The next day a cystogram was done and the diagnosis of diverticulum confirmed. He was returned to catheter drainage, but he now began to fail rapidly and in a few days was dead. His non-protein nitrogen mounted rapidly immediately after the cystoscopic examination. I am firmly convinced that this man would have had a much better chance for recovery if he had had a cystostomy done when he first entered the hospital. He could have been cystoscoped and then the bladder opened at once. A foul bladder such as his, which you see so often in diverticulae, can be drained more adequately by cystostomy than by catheter. These borderline cases must be treated with the greatest care. Adequate drainage must be established with the least amount of trauma. An overzealous investigation can easily jeopardize the life of the patient. This man proved that his kidneys could come back by the way he improved under catheter drainage, when he first came in, but the infection following the trauma of the cystoscopic examination and cystogram was too much for him to stand with inadequate catheter drainage. A cystostomy when he first entered the hospital I am sure would have put him in condition so that an attempt could have been made at future operation. As I said before a death of this sort does not appear in the mortality of prostatic obstruction but it should.

Suppose a man with prostatic obstruction presents himself for examination what should be the procedure? If he is in good condition and has little or no residual urine one can proceed much farther in examination and diagnosis than in the poor risk. Such a man can safely be cystoscoped and have cystograms done if it seems advisable. If, however, he has an overdistended bladder or is showing signs of renal insufficiency we must proceed with the utmost care. In such cases our one thought must be immediate and adequate drainage with the least possible amount of trauma. Shall we cystoscope such men? No, by all means, unless we are prepared to open and drain the bladder at once. I frequently cystoscope such a man on the operating table and then at once open the bladder and insert a large tube. One cannot introduce a cystoscope through an enlarged prostate without considerable trauma and the possibility of stirring up an infection. If this is followed by catheter drainage, rather than by the more adequate suprapubic drainage, the danger of infection is increased. I am sure that urethral and prostatic infection is a thing that cannot be ignored. It may be mild, but it may be just enough to start a feeble old man in the wrong direction and prevent him from reaching a prostatectomy. I have seen desperate cases, under suprapubic drainage, come to a successful prostatectomy that I am perfectly sure would have died under catheter drainage. The more infection the more danger of embolus.

These same arguments apply to cystograms. They are interesting and instructive, but it is just one more thing to upset a feeble old man. The thing to remember is drainage with the least amount of trauma.

*Read at the Annual Meeting of the New England Surgical Society, September 12, 1931, at Portland, Maine.

†Crosbie — Associate Urologist, Beth Israel Hospital. For record and address of author see "This Week's Issue," page 528.

Having established the fact that a man needs bladder drainage what shall be the method? To my mind the safest and surest drainage is by cystostomy. I have stated that the drainage should be done with the least amount of trauma and it may be paradoxical to advise cystostomy for this, but with the bladder open and the prevesical space drained one is assured of adequate drainage of the bladder and the incision. The urethra is at rest and no new infections of the prostate will take place.

Drainage by catheter cannot be done without a certain amount of catheter urethritis with resulting infection of the prostate. Of course, most men can handle this infection but it may be just enough to throw the balance in the wrong direction. These cases that succumb under catheter drainage never enter the mortality of prostatectomy. A person with a badly infected urine such as one so often sees in diverticulum of the bladder gets much more satisfactory drainage by a suprapubic tube than by catheter.

In spite of the fact that I occasionally do a one-stage prostatectomy I am firmly convinced that if all cases were drained suprapubically before prostatectomy our mortality would be lowered. To those of us who are trained in the perineal operation the lowest possible mortality could be reached if we did a preliminary cystostomy and followed that by a perineal prostatectomy. There is no question but what there is less shock to a perineal prostatectomy and then one has the advantage of dependent drainage.

I think most of us are agreed today on the advisability of dividing the vas no matter what form of drainage we use. I remember a man with a bad heart upon whom I did a two-stage perineal prostatectomy a few years ago. He had a very uneventful convalescence, but after he returned home he had several attacks of epididymitis. With each one his heart would become decompensated and finally he died during one of these attacks. I am perfectly sure if the vasa had been cut he would have lived longer and much more comfortably.

A great deal has been written about the importance of gradual decompression of the overdistended bladder. I am afraid I am a good deal of a heretic as I never hesitate to empty a bladder completely and insert a large tube. What I do in these cases is to use a liter of five per cent. glucose solution intravenously or by hypodermoclysis every eight hours until the kidneys are excreting satisfactorily. I never experience any serious trouble no matter how much distended the bladder is. If one drains by catheter I can well see how gradual decompression would be of importance as a suddenly collapsed bladder is apt to bleed and small clots might block the catheter and the bladder become distended again.

After drainage has been established the important stage of preparing the patient for the final operation is entered upon. Here, too, we must remember not to do too much to the patient. The sooner he can be brought back to his normal mode of life the better. None of my patients ever receive any bladder irrigation either after the first or second operation. I do not believe it does any good and it just annoys the patient.

The less that is done in the way of medicine the better. Many of my patients never receive any medicine. Morphia especially is avoided. It has a depressing effect and tends to tie up the bowels which is always disastrous in cases of urinary obstruction. I feel so strongly about morphia that I have a rule that no house officer is to order it without my permission or that of my associate. I would rather a patient got an hour of natural sleep than several hours of drugged sleep.

Urinary antiseptics are avoided. My people never get any at all. I formerly used urotropin but have not for years. I would rather depend on a large amount of dilute urine passing than all the irrigations and antiseptics. No medicine is used without a definite object. Digitalis is one drug that is required at times. Tonics I never use.

During the period of drainage every effort is made to bring the patient back to his normal life. He is up out-of-bed in two or three days and is encouraged to walk and get out-of-doors. No attempt is made to change his habits, but on the contrary he is encouraged to continue as he has been accustomed to do. If he is a drinker, he is allowed some liquor. If he is a smoker, he is encouraged to take it up as soon as he feels like it. Some patients feel that they are aiding the doctor by reforming while in the hospital. This is poor policy. I remember one old man who at the end of a week was not gaining as he should. I asked him one day if there was anything he would like to have. He said, "Yes I would like a cigarette and a bottle of beer." Although it was against hospital rules he was provided with these and at once began to gain.

Never be in a hurry to perform the second operation. You will never regret waiting too long and if you operate too early your regrets will do the patient no good. Wait until the suprapubic incision is clean and granulating. I I never like to go ahead with a sluggish, dirty-looking wound. Be sure the patient has gained as much as he is going to do. He should be feeling fit according to his own statement. This is often of more value than function tests. Of course, function tests must be made, but do not depend on them entirely. They are frequently satisfactory before the patient is really ready for operation. If I could have only one test to use to determine the time for the second operation

I would choose common sense. The man should be sleeping normally and enjoying his food. Of course, during this waiting period, attention should be paid to the heart and any other infirmities that can be improved.

Having come to the time for the second operation the preoperative medication should be slight. Some people dope a patient almost to unconsciousness with scopolamin or sodium amytal before operation. I think this is very bad. I use only one-sixth grain of morphia, one-half hour before and three-quarters of a grain of ephedrin ten minutes before the spinal. I take it for granted that everyone uses spinal for prostatectomies today.

I will not discuss in detail the type of prostatectomy to be used, but I do feel that for those trained in the perineal operation it can be done with less shock than the suprapubic. One operation I do wish to condemn is the one in which the old incision is opened wide and the prostate enucleated under vision and the capsule sutured. A great deal of the advantage in sealing off the prevesical space is lost. It is much more of an operation than a simple enucleation through the old cystostomy opening. The simplest operation possible is the best for these old men. It goes without saying from my previous remarks that I thoroughly disapprove of the one-stage suprapubic enucleation with suture of the capsule and complete closure of the bladder.

After a suprapubic prostatectomy I never use a catheter in the urethra until I am ready for the bladder to close. The less harness these old men have on the better. The shorter time the catheter is in, the less catheter urethritis they will have. Many of my suprapubic cases close without ever having a catheter.

My after-care, after the prostatectomy, is much the same as after the preliminary operation. Medicines are avoided as much as possible and no irrigations are given. The drainage tube is left in until the urine has been free of macroscopic blood for a couple of days. If one attempts to close the bladder too soon he is just inviting secondary hemorrhage.

CONCLUSIONS

1. The most important part of prostatectomy preparation is drainage and the most adequate drainage is by a suprapubic tube.
2. Avoid unnecessary investigations in sick patients.
3. Add common sense to laboratory tests in picking the time for the second operation.
4. During the whole course of treatment remember that the simplest things are the best.

Discussion

Dr. Alfred Mitchell, Jr., Portland, Me.: I think we will all agree that Dr. Crosbie's paper is essentially sound and that he has convictions based upon an extensive experience in prostatectomy work. While very low operative mortalities are reported and the average statistics of men familiar with this work are not exceedingly high, if all cases of prostatic obstruction are included, those who are refused operation or who die from preliminary drainage or from the removal of the prostate either immediately or within a comparatively short time afterward, the total mortality is high. Dr. Crosbie's opinion that if all prostatectomy cases were operated upon by the two-stage method, the mortality would be lowered is probably correct. There cannot be any question but that patients suffering from renal insufficiency, senility and bladder complications, which with cardiovascular disturbances constitute the more unfavorable risks, should be operated upon by this method; these are the patients who for the most part make up the mortality lists. I am not, however, entirely in agreement with Dr. Crosbie in his criticism of preliminary catheter drainage. Quite a large proportion of patients bear indwelling catheters very well indeed and many of them are comparatively good surgical risks and in this type preliminary drainage can be adequately carried out and one-stage prostatectomy performed with excellent prospects of success. Such mortality as might follow from embolism, pneumonia or some unusual condition will be as likely to occur under the two-stage method. The advantages of the one-stage operation are obvious. The patient is saved one operative procedure which means much to a nervous individual, also has usually more prompt closure of the bladder wound with a shorter convalescence and a briefer stay at the hospital. I have recently operated upon a very corpulent patient by this method. I felt that the thickness of the abdominal wall would make a two-stage operation exceedingly difficult and the manipulation necessary more of a shock to the patient who was not a particularly favorable risk. The patient is having an excellent convalescence.

I have not divided the vas as a routine procedure. Epididymitis is, undoubtedly, a common and painful complication and may prolong convalescence and, in such a case as Dr. Crosbie describes, might turn the scales against the patient's recovery, but in my experience, it is rarely serious so far as life is concerned. According to such statistics as are available the chances are against its occurrence. While ligation of the vas is a minor procedure it is one more operation. I, however, recognize the arguments in its favor and, perhaps, should adopt it but do not consider it as one of the essentials.

In regard to the gradual emptying of a long-distended bladder or bladder decompression I have seen patients die of uremia following the complete emptying of the bladder by catheter in

cases giving a history of an incontinent bladder from over-distention with symptoms of dry tongue, excessive thirst, nausea, etc., and have seen the same type die when suprapubic cystotomy has been performed under the same conditions, in fact, suprapubic cystotomy for the relief of acute distention has a definite mortality. It might be that such cases would die no matter what the nature of the procedure but I believe they should be given the benefit of decompression.

While I have as a routine used urinary antiseptics in prostatic work, I have seen little, if any, evidence of their value in these cases.

I am not quite so conservative as Dr. Crosbie in the use of morphia. While recognizing his excellent reasons for not administering it, I have given it rather freely after operation to relieve the pain and spasm which often occurs when gauze packs of hemostasis bags are employed.

After operation, during closure of the bladder incision, I think as a rule patients are more comfortable with a catheter in the urethra. For the most part it keeps them dry. Dressings saturated with urine are uncomfortable. The ideal method of keeping the patient dry is by means of the suction apparatus as employed by Squier and others which unfortunately is not available to all of us as its instalment is expensive.

I congratulate Dr. Crosbie upon his able presentation of this important subject.

Dr. Arthur L. Chute, Boston: I have enjoyed Dr. Crosbie's paper on Prostatic Pitfalls very much, and I quite agree with him that many unnecessary fatalities occur in the management of what he calls the pre-prostatectomy stage. It is true that fatalities occurring at this time are not usually recorded under the mortality of prostatectomy, and strictly speaking, should not be although they are due to the basic condition that we are trying to remedy by means of the prostatectomy. I shall devote my discussion to the consideration of this point.

Under ordinary conditions the bladder, an organ which is intended for the storage of a waste product, is not itself especially sensitive, as instanced by the little systemic reaction seen in acute cystitis and the relative impunity with which one may open a bladder for the removal of a small tumor or a foreign body, as well as the little reaction that as a rule, follows the passage of a catheter upon the acutely distended bladder of a postoperative patient, or an acute alcoholic.

Let one, however, open the chronically distended bladder of a prostatic or draw off its contents with an inlying catheter and one may set in action a process which may be more or less quickly fatal unless promptly and properly combated. This is due to the fact that while the normal bladder simply serves the kidneys as a reservoir for their waste products, the over-distended bladder actually interferes with their function, since it forces them to work against a back pressure that was not intended. It is evident that even if the ureter is not dilated, the increased pressure in the bladder will be passed back to the kidney. The kidneys have a considerable ability to adjust themselves to this back-pressure and to carry on their work in spite of it, but if allowed to go on indefinitely, it will slowly lead to cachexia urinaria and finally to uremia. If this backpressure is suddenly released, as when a chronically distended bladder is opened suprapubically, there follows a passive hyperemia of one or both kidneys, which may be so great as to go on to an anuria. To this there may be added a second condition in which infection from the bladder perhaps present at the time, perhaps introduced at the time of operation, is transmitted to a kidney, or to both kidneys, presumably by the ureter, and probably more easily through a dilated ureter. In this latter condition we find the active hyperemia of an infection. This condition I believe is more likely to follow drainage by an inlying catheter than by suprapubic incision for the reason that the catheter drainage is apt to be intermittent, thus favoring ascending infection. Clinically we often see a combination of these two types of renal disturbance. These conditions do not always come about when one relieves an overdistended bladder, and doubtless sometimes they remedy themselves, but they are frequent and it is this condition that brings the mortality of the preprostatectomy stage. Irrigating the bladder, cystoscopy, and cystography increase the probability of bladder infection and therefore renal infection and should not be done routinely in these patients.

Clinical experience has taught us that when the renal output is falling, putting salt solution under the breast or into a vein will in a large proportion of cases be successful in starting the urinary secretion and avoiding a uremia.

It is my hypothesis that a kidney which is actively or passively congested or even infected, often cannot extract the waste products or even water from a blood stream, presumably of normal concentration, but can often do this easily from a more dilute blood stream. Of course this presupposes a circulation that, with or without help, will take care of say 4000 c.c. of salt solution a day, perhaps for several days; and sometimes larger, in the case of kidneys that are actually infected. Whether our hypotheses as to what occurs in this condition, are right or wrong, the clinical fact remains that the introduction of large amounts of fluid into the circulation of these patients, whose output is diminishing during the preprostatectomy stage, is usually followed by recovery in the same type of patient that we were formerly accustomed to see go on to a fatal termination under similar conditions.

Dr. Richard F. O'Neil, Boston, Mass.: I told Dr. Crosbie yesterday that I was very much intrigued by his title, "Prostatic Pitfalls." As I have found myself in at least two such, I am going to discuss the paper from that point of view. To illustrate what I mean: A patient was admitted to the hospital with the history of urinary difficulty and retention. As he had an indwelling catheter in the bladder on admission and there was considerable prostatic enlargement by rectum, the diagnosis of prostatic obstruction was taken for granted. His condition was improved by drainage and after a week I decided to do a suprapubic prostatectomy under spinal anesthesia. On opening the bladder my finger encountered the openings of two large diverticulae. So I had to do an extensive dissection and removal of the diverticulae instead of a prostatectomy. The prostatectomy was done at a later date and the end result was entirely satisfactory.

In the second case the obstruction was thought to be due to a median bar. A punch operation was performed but the symptoms and residual urine were unimproved. A later cystoscopy showed a large diverticulum. In each instance had a cystoscopy been done, or a cystogram been made, the true condition would have been evident. It is only fair to say that those cases occurred a number of years ago. Since that time I have insisted that one of these procedures be carried out in all cases. Diverticulae are not so very uncommon and I like to know when they are present. The more recent development of intravenous urography by use of uroselectan gives an excellent picture of the lower as well as the upper urinary tract. I do not regard a cystogram as a very serious procedure. I think Dr. Crosbie's suggestion that cystoscopy be done immediately before cystotomy is an excellent one. Should a diverticulum be found I much prefer catheter drainage to cystotomy as removal of a diverticulum after cystotomy is a much more difficult operation.

Dr. J. D. Barney, Boston, Mass.: I enjoyed Dr. Crosbie's paper very much and I want to agree with most of it, disagree with a little of it and emphasize a little of it.

I think, as Dr. Crosbie does, that the less preliminary handling and investigation of these old men we do, the better off the patients are. I think we can find out a good many of the details that we should like to discover after the patient has been put into better condition than he is at first.

Cystoscopy as a preliminary measure I think is very unwise. Many men do it and interesting points are seen, but I think it invites infection and produces a little shock and may tip the scales. We can do it later on or find out what we want by other methods.

In the matter of an overdistended bladder I rather disagree with Dr. Crosbie as to the advisability of emptying it right off. I have had two or three unfortunate experiences that way and I know there are many. I think an overdistended bladder should be gradually drained. By putting in a ureteral catheter gradual drainage can be obtained in a perfectly harmless way until the balance has been reached. Then the bladder can be drained by suprapubic cystotomy, but I think immediate emptying is very dangerous.

I want to say something about the possibility and value of doing some of these cases without drainage. It seems very radical and can't be done except in a few cases. There are certain men with uninfected bladders and good kidneys. The minute you put a catheter in, you invite infection and operate in the midst of it and if you do a suprapubic cystotomy, the same thing may occur.

In the last two years I have done several cases without any drainage whatever. I kept them in the hospital for a few days to a week or possibly longer, forcing fluids up to the limit and other preparatory measures. They have done better, I think, than cases where a lot of preliminary catheter or suprapubic drainage has been instituted. This is not an original scheme with me. It has been done in other parts of the country and I understand very satisfactorily.

The ligation of the vas deferens I find can be done very well through the same wound as the cystotomy. It is easy enough to reach into the groin and pull up the cord and not subject the patient to a third operation. It is bad for him from a psychic standpoint, and I am not convinced that it is a desirable thing.

I want to emphasize what Dr. Crosbie said about the value of the laboratory. I think if we are surgeons of any experience, our surgical judgment is the best thing. Without boasting I can say in a hospital near Boston (a Government hospital), where these blood tests can't be done, I have done prostatectomies for a good many years and so far have never lost a case. Perhaps that means that the length of time for preparation means nothing to the patient, the doctor, or the hospital. I drain and drain them. These old men are hard-boiled old sailors who have no background of resistance. They are full of rum and syphilis. They are bad risks, but so far not one has died and it is simply because they have been very, very thoroughly drained.

Dr. Francis S. Watson, South Dartmouth, Mass.: I wish to protest against the expression "these old men". I resent it, sir. I see no cause for it. I have had a prostatectomy done, sir, and have been rejuvenating ever since. I strongly object to the expression.

President Rowley: I think it puts the clock back.

Dr. Stephen A. Mahoney, Holyoke, Mass.: I see no reason at all why, in this specialistic talk the general surgeon should enter it, but at the same time in our part of the country we are called upon to do all sorts of things and among the things we do occasionally, perhaps four or five times a year, is prostatectomy.

I agree thoroughly with Dr. Crosbie that the success of the operation depends upon the preoperative treatment. Relative to whether it will be catheter drainage, which I think may not be so good with the rather unskillful clientele we have around our hospital, or a suprapubic entrance to the bladder, I am decidedly in favor of getting into the bladder as soon as you possibly can.

There is one thing I should like to speak of and that is what Dr. Crosbie said about spinal anesthesia.

I have used spinal anesthesia in general surgery a number of years ago, quite extensively, particularly in belly complications, but I must say I have never used it to take out a prostate. I consider spinal anesthesia one of the most dangerous anesthetics that we possibly can have and from what I have read in the Medical Journal, I think it is the *New England Journal of Medicine*, relative to the mortality of spinal anesthesia around Boston, I should think it would discourage any Boston man from using spinal anesthesia.

In the early part of the spinal anesthesia, there is always a decidedly noticeable fall in the blood pressure, and it is that fall in the blood pressure that drove me away from using spinal anesthesia. A few minutes after it is in the spinal cord, the patient seems to go into a state of shock and you always have to have some stimulant ready on the stand in order to bring him out of that shock, and when you consider the class of cases that you have to deal with in prostatic trouble, I think that additional drop in blood pressure and shock that goes with spinal anesthesia is not the best thing for the patient.

I have always used ether in these cases and I think it would take a great deal of persuasion to wean me away from it. I certainly do not think that spinal anesthesia has a place in surgery outside of a large hospital where the teamwork is such that there is no danger that you will bring in additional complications, when you have perfectly safe anesthetics at hand.

I have known meningitis to result from the introduction of a spinal anesthetic in consequence of breaks in technique and I think it would take a great deal to persuade me to go back and put anything into the spinal cord unless I were absolutely certain that the work of my team was absolute perfection.

Dr. P. E. Truesdale, Fall River, Mass.: We use spinal anesthesia in prostatectomy, in operations on the rectum, in amputation of the leg, in vaginal hysterectomy, and in other procedures carried out below the diaphragm whenever there appears to be undue risk from inhalation anesthesia.

About ten years ago Dr. Keyes, of New York, read a paper at the Boston Medical Library on prostatectomy. In it he stated that he had lost a patient from spinal anesthesia, and anyone who was using spinal anesthesia in prostatectomy was inviting a catastrophe.

Now, I dare say, Dr. Keyes uses spinal anesthesia (Dr. Chute says "yes") as a routine. I hope that Dr. Mahoney hasn't abandoned the use of spinal anesthesia altogether.

Dr. Emery M. Fitch, Claremont, N. H.: What was the average time in getting a sinus closed and a completely normal urination established?

Dr. John M. Birnie, Springfield, Mass.: I rather hesitate to say anything on this very special procedure but, like Dr. Mahoney (I live only ten miles from him), I venture to say something along the same lines he has spoken, not in regard to the spinal anesthesia, but in regard to the operative procedures in suprapubic prostatectomy.

A few years ago I advocated a method by making two incisions, one two inches to the right of the median line, and later, when you get your second stage, making a second incision two inches to the left of the median line, so that your two incisions were about four inches apart. I realize that there are many theoretical objections to this procedure in opening the suprapubic space, but practically it works.

I have done a number by this method and I continue to do it. Probably it is no good because nobody else does it. It helps you in the cases that Dr. O'Neil spoke of. If you could go in the second time and find that you have a diverticulum or something like that to deal with, it would work very nicely. You can open the bladder as wide as you please and do everything in sight, and, as to the other parts of your technique, that is, how you control your hemorrhage and how you enucleate your prostate, that is entirely secondary. You can use any procedure you are in the habit of using. The only important deviation from the usual procedure is making the two incisions.

Dr. David W. Parker, Manchester, N. H.: I should like to ask about hemostasis after prostatectomy, and use of bag.

Dr. A. H. Crosbie: I want to thank the discussers for being as lenient as they have been. I will answer the questions first.

Regarding hemostasis, I have never yet used a bag. Under spinal anesthesia we have very

little bleeding and after the prostatectomy I have used gauze, following Dr. Chute's example, in the cavity, and I hold it in place a few minutes. As a rule bleeding subsides and I put a tube in. If I do not do that, I use a small piece of gauze, leaving it in the cavity, and I take it out about the third day.

As to how long it takes the incision to close, it varies a great deal, approximately two weeks, I would say, after the tube is taken out. Some close more quickly and some take longer.

I want to say a word about doing the two-stage prostatectomy. If a preliminary drainage is safer for the feeble man (I will not say "old man"), why not give a man in good condition the same chance? I admit that many men that need a prostatectomy are in good condition and will stand it well. On the other hand, every once in a while you have a stormy time with one of them and if we drain every one of them as a preliminary, they will be better off.

I want to say a word regarding decompression of the bladder. I admit that many of these men with over-distended bladders, if you empty them and let them alone, will develop renal insufficiency, dry tongue and uremia, and everything of that sort, but you have to anticipate it. If you wait until that dry tongue and distention and delirium occurs, it may be too late to do anything.

I learned from Dr. Chute that the thing to do is to anticipate it and the minute you open the bladder, start the fluids and in most cases you will ward off any renal insufficiency which might appear. If you wait until it appears, you will have a lot of trouble and you will probably lose your patient.

As to spinal anesthesia, I think if Dr. Mahoney would use ephedrin before the spinal, he would find he would get practically no drop in blood pressure.

BETTER MATERNITY CARE

Plans for a nationwide Mother's Day Campaign to obtain better maternity care for expectant mothers are taking concrete form among women's clubs, church and civic organizations, health departments, medical societies and nursing groups, according to details which have been made public by the Maternity Center Association, 1 East 57th Street, New York City.

Last year the Campaign sponsored by the Association culminated in a meeting of prominent citizens which included Mrs. Herbert Hoover, Mrs. Theodore Roosevelt, Sr., Mrs. Charles A. Lindbergh and many of the most eminent physicians of the country. They voiced an indignant protest against the high maternity death rate in this country, and demanded that America provide its mothers with more adequate maternity care, by means of which, authorities maintain, 10,000 of the 16,000 mothers who die annually in childbirth could be saved.

Mrs. John Sloane, president of the Maternity Center Association in a recent letter, expressed surprise that the campaign last year interested fully as many men as women and indicated that special efforts are to be made in 1932 to awaken prospective fathers to the fact that a well baby and a healthy mother require more than simply to let nature take its course.

"The Maternity Center Association," states Mrs. Sloane, "will be glad to help local organizations everywhere to call the attention of their communities to the vital need for adequate maternity care. Mother's Day is Sunday, May 8. Material for speeches, programs for women's clubs, outlines for church services and other helps for local campaigns are available free of charge to anyone interested in improving conditions in his locality."

Among prominent persons on the Board of Directors of the Maternity Center Association are Miss Mabel Choate, Mrs. E. Marshall Field, Mrs. John R. Drexel, Mrs. Robert L. Gerry, Mrs. Shepard Krech and Mrs. Jeremiah Milbank.

MORE PLANS FOR CHILD WELFARE

Dr. Ray Lyman Wilbur, Chairman of the White House Conference on Child Health and Protection, has announced that five states have set dates for follow-up White House Conferences to consider the findings and recommendations in the fields of child health welfare, recreation and education and further amplification of the programs in individual states as set forth in the aims and principles in the Children's Charter.

Arkansas held a conference on March 1; Washington will hold a conference on April 1 and 2; Kentucky, April 12 and 13; Iowa, April 14 and 15, and Oregon, May 2 and 3. Committees are now planning for conferences which will concentrate on the subjects referred to above. These meetings will complement conferences in twenty-three states as well as a considerable number of counties and cities.

States which have already held conferences are Indiana, Georgia, Utah, New Jersey, New Hampshire, Florida, Mississippi, Maine, Massachusetts, Oklahoma, Michigan, Louisiana, Virginia, Idaho, South Carolina, Montana, California and Ohio. It is encouraging to find that the interest of the people very generally throughout the United States has been aroused to the extent of practical efforts in furthering the plans and recommendations incident to these White House Conferences.

PATHOLOGIC-PHYSIOLOGIC STUDIES ON CHANGES IN THE EXTERNAL SECRETIONS OF THE PANCREAS AND LIVER*

BY CHARLES W. MC CLURE, M.D.,† AND MILDRED E. HUNTSINGER, A.M.†

THE present communication reports the results of an investigation of the pathologic physiology of the external functions of the pancreas and liver as evidenced by variations in the concentrations of enzymes and of biliary constituents of duodenal contents. One purpose was to ascertain the reason for the widely varying results of enzymic determinations in duodenal contents which are reported by different observers. Another was to make a more comprehensive study by analysis, with relatively exact methods, of the results obtained in various clinical conditions. A third purpose was the investigation of possible relationship between functional disturbances of the liver and pancreas.

The various procedures which have been proposed for ascertaining the functional condition of the pancreas were discussed in a previous communication[1]. It was concluded that "the nuclear test and certain metabolic examinations are of value in demonstrating far advanced disease of the pancreas. The presence of glycosuria and a positive Cammidge pancreatic reaction in the urine are of varying degrees of diagnostic aid." The methods for estimating pancreatic activity by determining the concentration of duodenal enzymes were also discussed critically. It was shown that most of the methods involve such error-producing physicochemical conditions as to render highly problematical the interpretation of results obtained by their use. Nevertheless, a relatively large literature, beginning with the pioneer investigations of Einhorn[2] and Gross[3], has been developed through the use of such methods. A critique of this literature will be undertaken because it aids in explaining the widely varying and contradictory observations made by different investigators.

A critical analysis of the reported studies of the concentration of duodenal enzymes requires data concerning (a) the use of the duodenal tube, (b) the procedures involved in collection of duodenal contents, (c) the stimulant to the flow of pancreatic juice, (d) the methods of analysis, (e) the manner in which normal standards were established, and (f) the basis for the diagnosis of either the normal or pathologic deviations. Unfortunately, many of the published papers omit so many of these necessary data that they cannot be analyzed. Also, there is a considerable literature, especially German and French, that is of purely physiologic character and not suitable for the purpose of the present investigation.

Fifteen reports were found which contained the data required for purposes of the present analysis. In only six[4, 5, 6, 7, 8, 9] of these was the position of the duodenal tube ascertained by use of the x-ray. Nevertheless, the x-ray is the sole means by which it is possible to determine whether the tip of the tube is actually in the duodenum[1]. Those observers not using the x-ray undoubtedly obtained a variable number of duodenal contents from the pyloric end of the stomach, the analysis of which does not represent true values.

In twelve investigations[4, 5, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17] the analytical methods used did not fully consider the physico-chemical conditions which govern enzyme action. Sörensen[18] established these conditions and the application of his findings to methods designed for clinical usage has been fully discussed by McClure[1] and by McClure and Wetmore[19]. When using methods which disregard the proper physicochemical conditions the amount of activity manifested by an enzyme does not necessarily bear a relation to the degree of its concentration; and the failure to show activity by such methods does not prove that the enzyme is absent. Obviously, if enzymic concentration cannot be measured, it is impossible to establish standards for comparison. For clinical purposes such standards are necessary to differentiate normal and abnormal states. Nevertheless, five investigations[4, 5, 10, 11, 12] were interpreted on the findings in but one normal subject. Two normal subjects furnished the controls for the quite extensive investigations of three other observers[13, 14]. All these investigators and three others[6, 15, 16] relied on the results derived from control patients who showed no clinical evidence of pancreatic involvement. Although the number so studied was not always definitely stated, 132 could be enumerated[4, 5, 13, 15, 16]. Of this number of controls one of the three pancreatic enzymes was reported as absent from the duodenal contents in 64 patients, two were absent in 9, and all three in 2 others. Even in two of the normal controls partial absence of enzymes was found[13]. Such great variability of enzymic concentration in a large proportion of the controls makes it well-nigh impossible to differentiate abnormal and normal states. The same deduction was made by Chace and Myers[4], and by Dowden and Enfield[16]. Only three investigators, all using non-comparable

*From the Gastrointestinal Division of the Department of Biochemical Research, Massachusetts Memorial Hospitals, Boston.

†McClure—Member Senior Staff Evans Memorial. Huntsinger—Chemist to the Department of Biochemical Research, Evans Memorial. For records and addresses of authors see "This Week's Issue," page 528.

methods, studied an adequate number of controls[7, 8, 17].

The normal duodenal contents obtained either during fasting periods or when digestion is progressing are mainly a mixture of bile, gastric contents and pancreatic juice. Numerous observations by the present authors show that during fasting for variable periods one or more of these three fractions may be lacking. However, during digestion all three fractions are normally present unless specimens are collected over a period of from seconds to a few minutes. The absence of one or more of these fractions in intermittent collection materially alters the concentrations of the enzymes of duodenal contents. Nevertheless, elimination of those conditions which so profoundly affect the uniformity of results were not given consideration by 10 observers[4, 5, 8, 9, 10, 11, 13, 14, 15, 16]. Not only is the procedure for collecting duodenal contents of importance but if the concentration of duodenal enzymes is to be used as the index of pancreatic activity, it is also essential that collection be made under those experimental conditions which will insure uniformly the presence of such enzymes. McClure and coworkers[20, 21] showed that such conditions could be consistently produced by stimulation of the flow of pancreatic juice with adequate amounts of food products. The proper food stimulant and the proper collection of duodenal contents were shown by these studies to give fairly uniform enzymic concentrations. They also showed that fasting duodenal contents in their enzymic concentration differ very materially from those obtained during the stimulating effects of foodstuffs. Fasting contents often show lack of uniformity of concentration of the pancreatic enzymes[7, 20, 21]. Tea, the Ewald test meal, and collection of duodenal contents after the stomach had emptied itself of milk[21] all yield contents as variable in enzymic concentrations as those of the fasting state. Nevertheless, duodenal contents were collected for analysis under these conditions by 8 of the investigators[4, 8, 9, 10, 11, 13, 14, 15]. Martin[6] used magnesium sulphate solution to stimulate the flow of pancreatic juice. Unpublished observations of the present authors have shown that this will produce pancreatic stimulation in only about 80 per cent. of normal subjects, and Martin[6] did not work with normal persons as controls. Three observers[5, 12, 13] used milk as a pancreatic stimulant. This would yield representative fractions if duodenal contents were collected before the stomach was emptied. The observers make no mention of this or of the character of the collected contents. This discussion shows that the investigators collected over such periods of time and under such conditions of pancreatic stimulation as to fail to obtain duodenal contents which uniformly represented the effects of pancreatic stimulation. This furnishes another explanation for the variable results reported by them.

Silverman and Denis[7] devised a means by which they obtained uniform concentrations of enzymes in the fasting duodenal contents of normal subjects. This was accomplished by analyzing only those contents which potentiometric determinations showed to be neutral or alkaline in reaction. In using the reaction of duodenal contents as an index to the presence of pancreatic juice, Silverman and Denis[7] have apparently disregarded two interfering possibilities. One is the dissociation of the enzymic and the alkaline secretory activities of the pancreas. The occurrence of this has not been proved, but some unpublished observations suggest it as a possibility. Secondly, achylia gastrica is a very common entity in a large variety of clinical conditions. Under such circumstances the normal acidity of the stomach is not present to render the duodenal contents acid in the absence of pancreatic juice. Therefore, in many clinical conditions the reaction of duodenal contents would be no guide as to the presence or absence of pancreatic secretion. For this reason, the estimation of enzymic concentrations in fasting duodenal contents is subject to varying degrees of uncertainty, all of which render the interpretation of the results obtained more or less problematical. Wadsworth and Aaron[17] employed corn oil, an efficient pancreatic stimulant, and also collected duodenal contents in a proper manner. However, they used methods for determining proteolytic and amylolytic activities which disregard important physicochemical conditions governing enzyme action. In spite of the criticisms offered, the results published by these investigators[7, 17] are consistent and may be considered as useful contributions.

The discussion of the correlated literature given above demonstrates that, with one exception[7], analytical methods were used which did not fully incorporate the physicochemical principles necessary to measure accurately the concentration of pancreatic enzymes of duodenal contents. With possibly two exceptions[7, 17], the methods of stimulating the flow of pancreatic juice and the collection of duodenal contents were such that the enzymic concentrations of the specimens were highly variable. In 11 of the 14 investigations little or no study was made of normal controls. In other words, at least 12 of the investigations discussed were carried out under improper experimental conditions. It is for this reason that the results given are so contradictory as to prevent conclusive deductions of clinical nature.

As recently as 1930 Chiray, Jeandel and Salmon[22] proposed a unique system for differentiating normal and abnormal pancreatic function through examination of the enzymic concentra-

tion of duodenal contents. They have used a preparation of so-called "purified secretin" to stimulate the flow of pancreatic juice. The substance was injected intravenously and the duodenal contents collected over intervals of 5 minutes each. The volume of each specimen and the concentrations of lipase and trypsin were determined. Plotted curves of the data thus obtained show suggestive differences between pancreas of normal and anticipated abnormal functional states.

In the course of 4 of the investigations[4, 5, 13, 14] discussed above estimations of the concentrations of duodenal enzymes were made in 18 cases of chronic pancreatitis, in 2 of acute pancreatitis and in 14 cases in which complete occlusion of the pancreatic duct was demonstrated. Either no enzymic activities were found or they were very slight in 15 cases of pancreatitis and in all the cases with occluded pancreatic ducts. Such diminution of enzymic activities was not found in so large a percentage of other clinical entities. These findings are the essential feature of the investigations which have been discussed. They were sufficiently suggestive to warrant further study of the enzymic concentrations of duodenal contents under more proper experimental conditions.

The above discussion shows that chemical investigations of the pancreatic fraction of duodenal contents are fairly numerous. However, fewer such observations have been made on the biliary fraction. Lyon[23] stimulated work on the microscopical study of duodenal bile in relation to diagnosis of gall bladder disease. To Lyon's procedures of examination Jones[24] added the spectroscopic estimation of urobilin. He and most other investigators using Lyon's procedure conclude that the results obtained furnish data of diagnostic importance in relation to cholecystitis. Excepting the observations of McClure and coworkers, to be discussed later, and of Chiray[25] and associates, chemical examinations of duodenal bile have been fragmentary. The latter have been correlated and reported by Lepehne[26]. Chiray investigated several of the chemical constituents of duodenal bile and concluded the findings were abnormal in the presence of gall bladder disease. They have been epitomized in book form[25]. The studies of Chiray are too little known in American literature. McClure and coworkers have made observations of sufficient number and of such character as to give to the chemical findings in duodenal bile an important status in several clinical conditions. The principal results of their investigations have already been presented in other publications[31, 32].

A system of duodenal analysis incorporating proper experimental conditions and analytical methods suitable for the study of the pancreatic and biliary fractions of duodenal contents has been developed by McClure and coworkers. The investigation included the development of analytical methods[19] incorporating the physicochemical conditions for controlling enzyme action and other methods[28, 29] for quantitating the biliary constituents. Suitable means[20, 30] for uniformly stimulating the flow of pancreatic juice and of bile were established, and procedures for obtaining specimens for analysis representative of the contents of the duodenum were developed. The levels of concentrations of the various pancreatic and biliary constituents of duodenal contents obtained from normal subjects[30] were determined. Obviously, these investigations required a large amount of carefully controlled experimental study, the principal results of which have been presented in other publications[31, 32].

EXPERIMENTAL PROCEDURE

For purposes of the present investigation the duodenal tube was introduced in the morning about 15 hours after the last meal. After the tip had entered the second portion of the duodenum, as determined by fluoroscopy, 5 c.c. of oleic acid and 30 c.c. of warm tap water were introduced through the tube. Collection of the duodenal contents was then performed as previously described[30]. The contents were analyzed for the concentrations of pancreatic enzymes by the methods[19] already reported. In the biliary fraction estimations were made of the substances giving a modified Pettenkofer reaction expressed as the "furfurol number"[28], of cholesterol[29], and of two classes of pigments[29]; i.e., one insoluble and one soluble in alcohol. The furfurol number is presumptively a measure of the bile acids. Cholesterol and the pigments are expressed as the number of milligrams per 100 c.c. of duodenal contents. The low normal boundaries, as established experimentally, are given in the following table for comparison:

TABLE I

Test	Low Normal Boundary
Amylolytic concentration	1.0 mgm.
Proteolytic concentration	2.0 mgm.
Lipolytic concentration	1.0 c. c.
Furfurol number	80
Cholesterol	30 mgm.
Alcohol insoluble pigment	7.5 mgm.
Alcohol soluble pigment	8.0 mgm.

The diagnosis of the clinical conditions studied rested on operative, autopsy and clinical findings of such nature that their correctness was established beyond reasonable doubt. The diagnosis of uncomplicated duodenal ulcer and, with the exception of one patient, of toxic jaundice was clinical. The diagnosis of gall stones was

usually based on operative findings. However, in a certain number the demonstration of clear-cut x-ray shadows was accepted as sufficiently positive proof. The diagnosis of cirrhosis was confirmed by laparotomy in all but two patients.

The results obtained from analyses of the duodenal contents of the patients with the clinical entities enumerated above are outlined in Table II which follows.

Cases number 1 to 7 of Table II represent patients with anatomically advanced cirrhosis of the liver. The biliary fraction of all these was abnormal. In the presence of jaundice traces of bile were found in the duodenal contents of case 4, and none in case 2 in which the bile ducts were obliterated by a sclerotic process. The biliary constituents of the other two jaundiced cases (cases 5, 7) were more concentrated. Ex-

TABLE II

ANALYSIS OF BILIARY AND PANCREATIC FRACTIONS OF DUODENAL CONTENTS

	Biliary Fraction				Pancreatic Fraction Enzymic Concentrations				
Case No.	Furfurol Number	Cholesterol Mgm. per 100 c. c.	Alcohol Insoluble Pigment Mgm. per 100 c. c.	Alcohol Soluble Pigment Mgm. per 100 c. c.	Amylolytic in mgm. Dextrose	Proteolytic in mgm. N	Lipolytic in c. c. N/10 NaOH	Diagnosis	Remarks
	80	30	7.5	8.0	1.0	2.0	1.0	Minimum normal limits	
1	0	Tr	Tr	Tr	1.9	1.5	0.1	Cirrhosis	No jaundice
2	0	0	0	0	1.0	1.9	0.6	"	Jaundice
3	48	—	Tr	Tr	2.1	4.2	2.3	"	No jaundice
4	Tr	Tr	0	Tr	1.7	2.0	0.2	"	Jaundice
5	Tr	23	Tr	4.2	1.3	1.7	0.4	"	"
6	40	57	7.8	11.2	5.0	3.4	0.4	"	No jaundice
7	22	13	Tr	4.0	3.0	3.5	1.0	"	Jaundice
8	0	0	0	0	0	0	0	"	Acute yellow atrophy
9	38	24	3.0	3.0	3.2	2.2	1.2	Cholecystitis	No jaundice
10	56	Tr	11.1	6.1	3.0	3.4	1.6	"	" "
11	18	29	1.7	Tr	1.8	2.8	1.4	"	" "
12	36	25	6.0	5.9	3.4	4.0	0.6	"	" "
13	0	0	0	Tr	0.2	1.5	0.4	"	Jaundice
14	70	42	Tr	Tr	1.0	6.6	3.0	"	No jaundice
	Tr	Tr	2.4	Tr	0.5	2.3	1.2		Jaundiced one year later
15	0	0	0	Tr	0.7	2.7	1.7	"	Jaundice
16	64	27	2.0	4.7	3.6	2.7	1.6	"	No jaundice
17	Tr	Tr	0	Tr	1.7	2.0	0.3	"	Jaundice
18	26	35	4.3	4.1	4.0	2.1	0.7	"	No jaundice
19	40	27	2.8	7.3	1.3	2.5	0.4	"	Jaundice
20	74	42	3.8	5.9	3.6	4.3	0.4	"	No jaundice
21	Tr	21	2.3	2.0	2.8	1.5	0.5	Cholecystectomy	" "
22	48	Tr	Tr	Tr	0	2.1	1.2	"	" "
23	56	84	4.0	12.3	2.4	3.5	0.3	"	" "
24	56	Tr	Tr	Tr	3.8	3.6	0.6	"	" "
25	0	Tr	Tr	Tr	1.9	2.5	0.7	"	" "
26	Tr	11	Tr	Tr	2.5	2.0	0.5	"	" "
27	20	20	3.5	1.5	5.0	2.4	0.7	"	" "
28	32	18	5.7	0.3	1.5	1.3	0	"	" "
29	38	20	Tr	6.3	2.3	2.5	0.8	"	" "
30	26	36	3.8	2.3	2.3	2.6	1.3	"	" "
31	30	16	2.0	3.5	4.0	1.8	0.5	"	" "
32	34	24	4.8	2.0	3.4	3.3	0.5	"	" "
33	38	Tr	Tr	Tr	1.2	1.7	0.4	Toxic	Jaundice
	30	48	7.3	6.7	1.5	4.0	0.6	Jaundice	
34	84	36	3.7	6.1	2.9	3.9	0.7	"	Recovering
35	0	0	0	0	1.0	1.5	0.7	"	Jaundice
36	—	—	*	*	4.0	0.5	1.1	"	"
	—	—	†	†	0.9	1.5	0.9	"	Five days later
37	64	Tr	8.5	1.8	2.9	1.7	0	"	Jaundice
	208	206	Tr	9.2	5.2	0	1.6		Second week convalescence
38	—	—	†	†	2.7	3.2	1.7	"	Jaundice
39	—	—	†	†	0.5	2.2	1.6	"	"

TABLE II (*Concluded*)

Case No.	Biliary Fraction: Furfurol Number	Biliary Fraction: Cholesterol Mgm. per 100 c. c.	Biliary Fraction: Alcohol Insoluble Pigment Mgm. per 100 c. c.	Biliary Fraction: Alcohol Soluble Pigment Mgm. per 100 c. c.	Pancreatic Fraction Enzymic Concentrations: Amylolytic in mgm. Dextrose	Pancreatic Fraction Enzymic Concentrations: Proteolytic in mgm. N	Pancreatic Fraction Enzymic Concentrations: Lipolytic in c. c. N/10 NaOH	Diagnosis	Remarks
40	—	—	†	†	1.2	2.0	1.6	Jaundice	Jaundice
41	36	25	Tr	Tr	4.0	5.0	1.4	"	"
42	92	41	4.3	5.7	2.1	4.4	0.7	"	Jaundice cleared
43	86	19	Tr	3.9	0	0	0	Cancer pancreas	After choledochogastrostomy, no jaundice
44	0	0	0	0	0.8	1.5	0.4	" "	Blood duodenal contents
45	0	0	0	0	1.8	2.9	1.0	Cancer common bile duct	Jaundice "
	38	16	1.9	2.0	1.0	2.5	—		After choledochogastrostomy, no jaundice
46	Tr	15	Tr	2.4	2.6	1.7	0.6	Cancer retroperitoneal glands	No jaundice
47	95	40	9.0	11.0	1.5	3.0	0	Cancer retroperitoneal glands	" "
48	192	87	7.5	15.0	2.8	4.6	2.8	Duodenal ulcer	
49	134	82	7.3	10.0	2.5	2.3	1.0	" "	
50	28	54	6.3	9.6	3.1	4.9	2.1	" "	
51	62	36	3.1	5.2	3.7	3.2	1.0	" "	
52	60	30	4.3	10.0	2.5	4.0	0.3	" "	
53	56	29	Tr	Tr	1.7	2.5	1.0	" "	
54	20	Tr	Tr	Tr	2.5	3.3	0.8	" "	
55	44	Tr	Tr	Tr	2.3	2.1	0.7	" "	
56	42	32	3.0	2.9	1.5	2.3	0.6	" "	
57	54	33	5.6	2.7	1.5	3.3	1.1	" "	
58	110	90	10.0	9.0	2.1	5.0	0.9	" "	
59	116	102	6.5	14.0	4.3	5.5	1.3	" "	

*No bile pigment present.
†Bile pigment present.

cept for the furfurol number in case 3, the biliary fraction of two non-jaundiced patients (cases 1, 3) was present only in traces. However, in a third case without jaundice (case 6) the low furfurol number represented the only abnormal element. Excluding case 2 with obliterated ducts, the findings show that the degree of abnormality of the biliary fraction was comparable regardless of the presence or absence of jaundice. It was also comparable regardless of the presence or absence of ascites, or of an hypertrophic or atrophic liver, these pathologic conditions being determined by operative or autopsy findings. The pancreatic fraction was abnormal in 5 of the 7 cases, as evidenced by the low lipolytic concentration found.

The patient reported as case 8 died from acute yellow atrophy superimposed on atrophic cirrhosis of the liver. Examination of the duodenal contents was made 72 hours before death and before marked cerebral symptoms developed. The autopsy findings were those usual for the conditions named. Microscopic studies showed such extensive degeneration that almost no anatomically normal liver cells were demonstrable. Both bile and pancreatic juice were absent from the duodenal contents.

Analysis was made of the biliary fraction of duodenal contents in 12 patients with chronic cholecystitis and of the pancreatic fraction in 13. During the period when four of the patients (cases 13, 14, 15, 17) were deeply jaundiced the bile of the duodenal contents was only slightly concentrated, while in the fourth mildly jaundiced patient (case 19) it was moderately concentrated. The biliary fraction of all other patients, and also of the patient represented by case 14 when not jaundiced, showed at least one constituent well below the arbitrary normal. These findings demonstrate that abnormal qualitative changes occur in the bile of patients with chronic cholecystitis both in the presence and absence of jaundice. Comparable biliary findings in chronic cholecystitis

have been previously reported[31, 32, 33]. In 6 of the patients (cases 12, 13, 17, 18, 19, 20) the pancreatic fraction showed abnormally low lipolytic concentration and in one (case 14) abnormally low amylolytic, while the remaining two enzymes were present in normal concentrations. In the absence of jaundice the pancreatic fraction in case 14 was normal. Thus about 50 per cent. of the cases showed abnormalities in the pancreatic fraction. Case 13 represents a patient with calculous obstruction of the ampulla of Vater, demonstrated at laparotomy. Concentration of both biliary and pancreatic fractions was lowest in this case. This observation confirms previous findings[27, 31], which showed that occlusion of the ampulla of Vater leads to great diminution in the amount of bile and pancreatic juice entering the duodenum.

Twelve patients were studied on whom cholecystectomy had been performed for cholelithiasis from one to ten years previously. None of these patients was jaundiced at the time of the examinations. Nevertheless, all of them showed abnormalities in the biliary fraction of duodenal contents and this was well marked in all but one. In the latter (case 23) the only marked abnormality was low concentration in the alcohol insoluble pigment. Only one of the twelve patients failed to show at least some abnormality in the pancreatic fraction, as evidenced by diminished lipolytic concentration in 10 and both lipolytic and amylolytic in one. These findings show that in these patients cholecystectomy was followed by abnormalities in both the biliary and pancreatic fractions of duodenal contents. Comparable biliary findings[31, 32, 33] have been reported following cholecystectomy.

Ten patients with toxic jaundice were studied. Examination of the biliary fraction of the duodenal contents of 6 of these patients was made and found to be abnormal. Bile pigment was absent from the duodenal contents of only one patient (case 36). These contents were collected on the second day after the development of clinical jaundice. However, contents obtained on the fifth day again contained bile. Correlation of the clinical progress of cases 33, 36, and 37 with the degree of concentration of the duodenal contents showed that a fairly close relationship existed between the two. However, the findings in cases 33, 37 and 42 show that neither the biliary nor pancreatic fractions may completely return to normal during convalescence. The second examination recorded in the table was made in case 33 one year after convalescence and two weeks later in case 37. The examination of case 41 was made 5 weeks after cessation of clinical jaundice. One or more enzymic concentrations were abnormally diminished in 6 cases (cases 33, 35, 36, 37, 39, 42).

Two patients were studied (cases 43, 44) in whom cancer had extended from the pancreas to, and had completely occluded, the distal portion of the common bile duct. No bile was found in the duodenal contents, which findings confirm those of previous observations[27, 31]. However, bile reappeared after choledochogastrostomy in one of them (case 43). The duodenal contents of this patient contained no pancreatic enzymes either before or after the operation. The duodenal contents of the other case (case 44) were persistently bloody and the presence of some pancreatic enzymes was interpreted as resulting from ulceration so that pancreatic juice entered directly the lumen of the gut. Another patient (case 45) without bile in the duodenal contents was found to have a cancerous lesion limited to, and completely obstructing, the common bile duct. After choledochogastrostomy bile of moderate degree of concentration reappeared in the duodenal contents. The pancreatic fraction of this patient's duodenal contents was not demonstrably affected. This observation confirms previous findings[27, 31] which were that occlusion of the common bile duct does not interfere with the concentration of duodenal enzymes when the distal end of the duct is not involved. Two patients (cases 46, 47) were observed in whom malignant involvement of the retroperitoneal glands occurred and in which eventually the pancreas became imbedded. Two months before a tumor could be demonstrated the lipolytic concentration of the duodenal contents was markedly diminished. The biliary fraction was normal in one of these patients and abnormal in the other. Thus in these patients qualitative changes in the pancreatic fraction were the first objective evidences of the disease.

Twelve patients with uncomplicated duodenal ulcer were studied during the period of active symptoms. The biliary fraction was decidedly abnormal in 8 cases (cases 50 to 57), while in the other 4 (cases 48, 49, 58, 59) the findings were within normal limits. The enzymic concentrations of the pancreatic fraction were normal in 9 cases. In 3 cases (cases 52, 55, 56) lipolytic concentration was abnormally low, while the other two enzymic concentrations were normal. The findings show that the biliary fraction was abnormal in 75 per cent. of the cases and the pancreatic fraction mildly so in 25 per cent.

The analytical results described may be summarized as follows:

Abnormal qualitative changes occurred in the bile in all patients with cirrhosis of the liver, with cholecystitis, with toxic jaundice, after cholecystectomy, with cancer occluding the bile duct, and in 75 per cent. of the patients with uncomplicated duodenal ulcer.

Complete occlusion of the common bile duct excluded bile from the duodenal contents. Pan-

creatic juice was excluded only if the occlusion involved the distal end of the duct; however, ulceration may permit some pancreatic juice to enter the duodenum directly.

Partial occlusion of the distal end of the common bile duct is accompanied by reduced concentrations in both the biliary and pancreatic fractions of the duodenal contents.

In cirrhosis of the liver the biliary fraction of duodenal contents was not influenced by the presence of jaundice, of ascites, or by the size of the liver.

Bile, but not pancreatic juice, was found absent from the duodenal contents early in the course of toxic jaundice.

In three patients convalescent from toxic jaundice neither the bile nor the pancreatic fraction of duodenal contents had become normal after 2 weeks, 5 weeks, and one year, respectively.

Both bile and pancreatic juice were absent from the duodenal contents of a patient whose liver had undergone extensive degeneration in the course of acute yellow atrophy.

The pancreatic fraction of duodenal contents showed slight qualitative abnormalities in about 70 per cent. of the cases of cirrhosis of the liver, in about 50 per cent. of cholecystitis, in 92 per cent. after cholecystectomy, in about 50 per cent. of toxic jaundice, and in only 25 per cent. of uncomplicated duodenal ulcer.

The earliest objective evidence of malignancy of the retroperitoneal glands of two patients was the finding of abnormal pancreatic concentration in the duodenal contents.

Discussion

Abnormal biliary findings were observed in the duodenal contents of all patients with demonstrable organic lesions affecting the liver or its ductal system. The usual explanation for the occurrence of jaundice in these conditions is that of mechanical obstruction to the common duct or to the canaliculi of the liver. However, comparisons of the concentrations of the duodenal biliary constituents in jaundiced and in non-jaundiced patients, either with or without biliary disease, show that bile comparable in concentrations and in qualitative composition is frequently secreted by all these groups of patients. This observation suggests that some additional factor other than obstruction may be necessary in order that clinical jaundice may develop. The most obvious additional factor is that of functional disturbances within the hepatic cells.

The presence in the duodenal contents of patients with toxic jaundice of at least two pancreatic enzymes in normal degrees of concentration shows that there was little, if any, obstruction of the ampulla of Vater. This finding excludes largely the presence of a so-called mucous plug as the cause for the jaundice. The qualitative changes in the biliary fraction were so marked as to demonstrate functional disturbance of the hepatic cells. The demonstration of hepatic dysfunction and of patency of the ampulla of Vater adds confirmation to the conception that toxic jaundice originates in functional disturbances within the liver's cells. It is interesting to note that the liver's functional state may remain disturbed after disappearance of clinical jaundice.

Following cholecystectomy the biliary fraction was always abnormal. Sufficient comparative studies on the same patient have not been made both before and after operation to ascertain the exact effect of the latter. However, the frequency of abnormal bile in the presence of gall bladder disease permits the deduction that persistence of abnormal biliary function explains the findings in part, at least. A rôle may also be played by the increased pressure within the ductal system incident to removal of the gall bladder, as was discussed in a previous study[31]. Comparable increased intraductal pressure would probably occur when loss of function of the gall bladder is produced by sufficiently advanced disease of that organ. Such a phenomenon offers one explanation for the frequency of the association of abnormal bile in the presence of chronic cholecystitis and the absence of the dark colored so-called "B" bile described by Lyon[23] and a large number of other observers. However, hepatic functional disturbance, and not changed mechanics within the biliary ductal system, is the major cause for qualitative changes which not infrequently occur in the bile in the absence of disease of the gall bladder or demonstrable organic hepatic involvement as reported here and in other communications[32, 34].

The findings discussed above show that abnormal biliary concentrations of duodenal contents occur under the following circumstances:

(a) when changes in intraductal mechanics occur; as in lesions obstructing the bile ducts, after cholecystectomy, in chronic disease of the gall bladder;

(b) in the presence of destructive lesions affecting the liver; i.e., cirrhosis, acute yellow atrophy;

(c) in circulatory disturbances of the liver;

(d) in the presence of functional disturbances of the liver without demonstrable organic basis.

Absence of or marked diminution in the enzymes found in the presence of malignant or benign lesions which occluded the pancreatic ducts is to be anticipated. In the absence of obstruction, the diminution of one or more enzymes in the pancreatic fraction of the cases reported in the table warrants the conclusion that

the abnormal concentrations reflected functional disturbance in the secretory cells of the pancreas. The complete suppression of pancreatic juice in the patient with acute yellow atrophy and the frequency with which evidences of enzymic abnormalities were associated with cirrhosis and toxic jaundice suggest that an interrelationship exists between hepatic and pancreatic functional mechanisms. The observation that, when pancreatic disturbance was demonstrable in cases of ulcer and cholecystitis, it was associated with abnormal biliary findings adds confirmation to such a conception. The pathologic physiology involved in the production of abnormal enzymic concentration of duodenal contents following cholecystectomy could, theoretically, result from increased pressure which develops in the common duct after this operation. Such increased pressure is necessarily reflected in the pancreatic duct. The mild dysfunction found when the pancreas was imbedded in malignant growths probably resulted from circulatory interferences due to pressure. Such dysfunction was the earliest objective symptom demonstrable in the two patients with malignant involvement of the retroperitoneal glands.

The findings discussed above confirm the conclusions drawn from previous investigations[27, 31], which were that pancreatic abnormalities were reflected in the duodenal contents when lesions obstruct the ducts, in the presence of destructive lesions, in circulatory disturbances, and when functional disturbances occur without demonstrable organic basis.

SUMMARY

Investigation of the literature shows that the great majority of observers have used analytical methods and experimental conditions for the study of the pancreatic fraction of duodenal contents which render problematical the clinical interpretation of the results obtained. However, a system of duodenal analysis has been developed which permits estimations to be made of both the pancreatic and biliary fractions of duodenal contents, which are sufficiently accurate for reliable clinical interpretation. Using this system, a study of patients with cirrhosis of the liver, toxic jaundice, cholecystitis, cancer of the pancreas, uncomplicated duodenal ulcer and a smaller number forming a miscellaneous group, together with a series of patients who had undergone cholecystectomy, has been made. The findings warrant the following conclusions:

Qualitative changes in the bile, interpreted as resulting from hepatic dysfunction, are the rule in organic diseases of the liver and gall bladder.

The findings suggest that functional disturbances of the liver's cells play an important rôle in the development of clinical jaundice.

The findings indicate that toxic jaundice results from hepatic dysfunction rather than from occlusion of the common bile duct.

In the absence of demonstrable lesions affecting the common bile or pancreatic ducts, mild pancreatic dysfunction occurred in the large majority of patients with hepatic cirrhosis, toxic jaundice and after cholecystectomy. This finding was interpreted as a result of hepatic functional disturbance, affecting interrelated pancreatic function.

Hepatic dysfunction occurs in duodenal ulcer in the absence of demonstrable organic biliary lesions, as evidenced by qualitative changes in bile.

Pancreatic dysfunction may be the earliest objective evidence of malignant involvement of retroperitoneal lymphatic glands.

The findings confirm previous observations and show that abnormal pancreatic and biliary fractions of duodenal contents occur, respectively, when lesions obstruct the pancreatic or biliary ducts, in the presence of destructive lesions of either organ, in circulatory disturbances of them, and in the presence of functional disturbances without demonstrable organic basis.

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A MENACE TO PHYSICIANS WHO WRITE PRESCRIPTIONS FOR ALCOHOLIC LIQUORS

It has been reported in the *New York Times* that fifty-five physicians of Brooklyn and Queens have been charged with violating the conditions of the medicinal whiskey prescription permits as filed recently with the United States District Court at Brooklyn. The physicians will be questioned in regard to the charges.

This drive is the result of an investigation which was begun a year ago by United States Attorney, Howard W. Ameli, who said it was the intention of the Government to file at least one hundred additional informations later this month against another group of physicians in another bootlegging ring. It is expected that most of those indicted will be permitted to plead guilty to misdemeanor charges, but that those who will not so plead will be liable to a maximum sentence of ten years in prison or a fine of $1,000 or both. This drive will probably be a source of satisfaction to Dr. Bevan of Chicago.

"SAVER OF MOTHERS" MOVEMENT GROWS TO END NEEDLESS FEVER DEATHS

Medical Societies, Leading Obstetricians, Women's Clubs and Welfare Groups Unite to End Scourge by Education and Cleanliness

A nationwide campaign to end the menace of puerperal fever, which, largely due to ignorance or carelessness, kills 38 out of 100 mothers who die at childbirth, was announced recently, prompted by an article in the March *Ladies' Home Journal* by Paul de Kruif, author of "Microbe Hunters," which points out that this disease is almost entirely preventable; the campaign will be vigorously prosecuted.

Forty-five medical societies and forty obstetricians, in addition to leaders of women's clubs and welfare organizations, describing the death rate of American mothers as "shocking" and "unnecessary," unite in meeting this scourge with a campaign of public education for strict cleanliness in the care of women in confinement and for adequate prenatal and postpartum care.

In twenty-three states, officers of medical societies approve the movement.

Obstetricians and heads of maternity institutions in New York, Philadelphia, Boston, Baltimore, Atlanta, Memphis, Chicago, Omaha, Portland, Ore., and other principal cities offer their encouragement and assistance.

Officers of twenty-five child welfare and family welfare societies support the campaign.

These supporters are resolved:

A. That the fact that childbed fever mortality losses are almost entirely preventable shall become known in their communities.

B. That the fact that such deaths are almost always produced through ignorance or carelessness in not treating the patient according to the rules of asepsis shall become known in their communities.

C. That every effort shall be made by the women of the community to encourage able and conscientious medical practitioners in childbirth cases.

D. That every effort shall be made to enforce stringent laws already on the statute books, dealing with public registration of deaths due to such causes.

MEDICAL PROGRESS

PROGRESS IN PROCTOLOGY

BY E. P. HAYDEN, M.D.*

WHEN one considers the high incidence of rectal disorders among people of all countries, together with the fact that most surgeons do some surgery of the rectum, it is rather surprising to find so little recent literature on this branch of surgery. Contributions on the problems of cancer of the rectum and sigmoid are quite numerous, and the subject is so important that it will be dealt with in another article in the near future.

Whether the sparsity of articles on the rectum denotes lack of interest in the subject, or a feeling that everything worth writing has already been written, it is difficult to say. There are probably enough hemorrhoid operations on the market now, and it is undoubtedly true that any one of them, properly performed, will produce a good anatomic and functional result in the majority of instances. There would seem to be little reason for anyone attempting to devise another. The problem now consists more in deciding whether to operate at all on a person with internal hemorrhoids which are giving symptoms of bleeding, or protruding, or both. Injection treatment is gaining in favor widely, but there are cases to which it is not suited. It is unlikely that pain will ever be eliminated entirely from the surgery of this region, or any other, though it is certain that great strides along this path have been made in the past. The large "pile pipe", formerly inserted after hemorrhoid operations, has gone, we trust never to return.

Pruritus ani, one of the worst diseases, if it is a disease, to which the human body is heir, and one of the hardest to cure, presents an opportunity for someone to make a valuable contribution. No one knows the etiology of the intractable cases. The simpler cases may be due to one of several factors which can often be detected and eliminated.

Anal fissures vary widely in their susceptibility to treatment. They all hurt, some intensely, and each of the various methods of dealing with a fissure fails in some cases. The decision whether to treat with mineral oil preparations, to dilate, to incise or to excise, to cut the external sphincter or not to cut it, is one which demands consideration, but practically all can be cured in one way or another.

Most fistulae, too, can be cured, but they demand the most careful diagnosis, painstaking operative procedure, and intelligent after-care. Graded operations must be undertaken in the more extensive cases.

Again, in our present knowledge of the etiology, and the medical and surgical treatment, of ulcerative colitis there is room for much advancement. Whether to perform an ileostomy and how soon to do so, is always a problem. Likewise the advisability of total colectomy under certain conditions must be weighed and evaluated.

Polyposis of the colon, a precancerous condition of major importance, demands thoughtful consideration in this light, and in the cases where the polyps are large in number statistics point to a cancer incidence so high that colectomy must be seriously considered as a prophylactic measure.

Surgery of the colon and rectum presents a challenge which may well be taken up more energetically. Great as is our interest in the problem of cancer, it is nevertheless a fact that for one person who appears with a carcinoma of the rectum forty or fifty appear with one of the lesser ailments. To these people this review is dedicated. For them nothing is so vital as that their bowel function should be restored to normal. So, from a rather sparse literature I have selected the following articles as being of worth-while interest or representing real advances.

HEMORRHOIDS

Hinkle[1], of Peoria, Illinois, in a recent questionnaire sent out to 75 proctologists, has secured some interesting data on the injection treatment of hemorrhoids. He received 47 replies. All but 2 of the 47 use this treatment in uncomplicated internal hemorrhoids. With regard to *type of solution*, 42 use either phenol (10% or less) in oil, quinine and urea hydrochloride (5-10%) or both. Twenty-eight prefer phenol and oil, 4 prefer Q. and U., and 10 use both. Of the 28 using P. and O., 20 have not had sufficient experience with Q. and U. to judge its value. The remaining 8 consider P. and O. to give more permanent results. Of the 4 who prefer Q. and U., at least 2 have had experience in injection treatment not exceeded by any others to whom the questionnaire was sent. Occasional sloughs occur with both solutions but this complication is never serious. Of the 45 men using injection treatment only 3 claim to get no recurrences. All the others admit that recurrences do come in a varying number of cases, after varying periods of time.

*Hayden—Surgeon to Out-Patients, Massachusetts General Hospital. For record and address of author see "This Week's Issue," page 528.

Hinkle, in conclusion, says, "After making due allowance for inaccuracies and exaggerations, it seems that either of these solutions, if properly used, will produce satisfactory and more or less permanent results in a very large percentage of uncomplicated internal hemorrhoids."

In view of the preponderance of men using a solution of phenol in oil for the injection of internal hemorrhoids, an article by Rosser[2] is of considerable interest. He reports a series of 24 cases in the past 5 years in whom untoward symptoms dated from the time they received this treatment. Nearly all had nodule formation in the lower rectum. Twelve patients showed a variety of symptoms including severe rectal neuralgia, chronic anal ulceration, gangrene, abscess, fistula, and prolapse of injection nodules. The other 12 had strictures of a degree necessitating operation. These he attributes to the coalescence of injection nodules. Section of these nodules showed intact mucosa with a diffuse, yellow, submucosal fibrosis surrounding large vacuoles of oil. Rosser mentions that both vegetable oil and paraffin oil solutions had been used, the difference being determined by the brilliant staining of the vacuoles with sudan III in the case of the vegetable oil. He does not state in what percentage of these poor results a vegetable oil solution was used.

It has been generally thought that a vegetable oil, as the base of the phenol solution, was absorbed after a reasonable period of time and did not remain in the tissues indefinitely as in the case of a mineral oil. Rosser's report surely calls for a careful check-up on the part of all who use an oil injection method.

Fred D. Weidman[3] of Philadelphia, in a communication to the *Journal* relative to Rosser's article, calls attention to several previous papers by himself on the reaction of tissues to paraffin oil injection and emphasizes that it is the oil and not the phenol which produces the stricturing.

PRURITUS

Buie[4], of the Mayo Clinic, in a recent monograph entitled "Proctoscopic Examination and the Treatment of Hemorrhoids and Anal Pruritus," makes several points of interest. 1. Based on a careful study, made by Malmgren, of sections of 100 surgically removed hemorrhoids, he is certain that *infection*, rather than any of the various mechanical factors, is responsible for the formation of hemorrhoids. 2. In the treatment of severe anal pruritus, by alcohol injection (not a new method), he claims permanent freedom from symptoms in 84% of a series of cases since 1925. He injects a 40% solution of ethyl alcohol subcutaneously and perianally. The term "permanent" is not a good one to use, particularly in respect to a series of cases ranging from 6 years ago up to the present time. However, to the sufferer from this ailment, Buie's statement offers considerable hope. Despite some skin sloughing in 50% of the cases, this treatment must be looked upon as worthy of trial in the cases whose symptoms are severe enough to warrant its use.

PRURITUS AND FISSURE

Gabriel[5] recommends, in the treatment of severe pruritus, a preparation consisting of:

Anesthesin	3%)	
Benzyl alcohol	5%)	in sterilized oil.
Aether*	10%)	

He uses 10 c.c., equally divided in 4 puncture holes placed at intervals over the posterior half of the anal skin. This location is chosen first in order to catch the inferior hemorrhoidal nerves and the perineal branches of the fourth sacrals. A week later, 5 c.c. is used in the right anterior quadrant and a week after that the left anterior quadrant is similarly treated. The injections are given deeply, not subcutaneously.

Gabriel has used benacol, as advocated by Yeomans in 1927, with good results. With either agent the vehicle is a vegetable oil and the active agent in solution is presumably held in contact with the irritated nerve endings longer than would be the case in a watery solution. Gabriel reports 16 cases treated within the previous nine months, 10 severe and 6 moderate. The number of injections varied from 1 to 6, with an average total quantity of solution of 8 c.c. All of the patients were relieved and 8 were practically free of symptoms at time of writing.

The same preparations may be used in treating the smaller anal fissures, injecting beneath the fissure and also into the muscle, producing both local anesthesia and relaxation. Gabriel has treated 30 fissure cases in this manner with the following results:

Healed (in 10 days to 3 weeks)	18
Still under treatment	6
Injected and subsequently operated	2
Injected once and not seen again	4
Total	30

Some pain follows the injection but it does not last long and is not too severe. All cases experienced great relief, and some complete absence of pain, within the first 24 to 48 hours. If the fissures are very deep, or sentinel piles pronounced, surgical excision is advocated.

In August, 1930, Gabriel[6] again writes on this subject, and seeks to emphasize certain ideas which another year's experience has served to strengthen. Apparently he has discarded Benacol, using only A. B. A. He concludes that in cases of anal pruritus:

*English spelling.

1. This treatment is necessary only in severe cases.
2. It is superior in every way to an undercutting operation.
3. An amount of 10 c.c. may safely be used at the first treatment, injected as previously described.

In the treatment of fissure, he advocates:

1. A. B. A. 5 c.c. into sphincter and a small amount directly under the fissure.
2. If excision of fissure or of sentinel pile or both is decided upon, the incisions are carried out well on to the skin as the base of a triangle whose apex is the upper end of the fissure. This allows healing from the apex outward.

INCONTINENCE

Wreden[7], of Leningrad, describes an ingenious method of securing voluntary closure of the anal outlet in cases of incontinence. With the patient in lithotomy position, 3 inch vertical incisions are made on each side of the anus midway between anus and ischial tuberosity. Two strips of fascia lata, 18 x 2 cm. in size, are so introduced that each encircles the anal outlet in opposite directions, the two ends of one coming out of one incision, the two ends of the other out of the opposite incision. These two ends are then reintroduced where they emerge and are drawn down under the skin of each buttock by forceps inserted through a crescentic incision posterior to each ischial tuberosity, and are then securely anchored on moderate tension, one behind and one in front of the fasciculi of the gluteus maximus muscle. Wreden reports a single case only, but with good control of both gas and feces 10 months after operation.

Harvey B. Stone[8] reports two cases operated by a method essentially that of Wreden except that Stone used prepared fascia. In one case an excellent result was obtained, in the other failure through sepsis. In a later article Stone[9] reports seven additional cases operated by the method of Wreden, modified in a few details by himself. Three of the cases were operated personally, two by his resident surgeons, and the remaining two were included in the report by courtesy of friends. These, together with Wreden's case, Stone's two previous ones, and another reported by Ransohoff[10] make a total of eleven thus far reported. The result in nine cases was considered good whereas in the other two cases it was poor.

A CASE OF SARCOMA OF THE ANUS

A teamster, aged 43, who had had "piles" for 3 years, recently worse, came in complaining of pain and swelling in left groin and swelling of right groin. He presented hard glands in both groins and thrombosed external piles, one of which was harder than the others. This proved to be a spindle cell sarcoma and patient died of generalized metastasis about 10 weeks later.

FOUR RARE RECTAL TUMORS: INTRARECTAL SOLID TERATOMA, FIBROLEIOMYOMA, PARAFFINOMA, AND CHORDOBLASTOMA

The authors[12] were able to find only 3 cases of *intrarectal teratomas* in the literature. The case here reported was in a woman of 35 who noticed hair growing out from within the anal canal. The tumor was white, oval in shape, and lay just above the lowest valve. It was the size of a plum and had a pedicle. The tumor was solid and covered with skin from which hair grew.

The *fibroleiomyoma* occurred as an encapsulated tumor posterior to the anus in a woman of 70, and was easily removed. The patient, for several years, had had pain in her rectum and difficulty in securing bowel movements.

The *paraffinoma*, in a man of 61, was the result of injection treatment for hemorrhoids 2 years previously. On examination there was a hard, annular constriction just above the anal canal. The mucous membrane was not ulcerated. Biopsy diagnosis at first was "Tuberculosis." The lower rectum was resected with preservation of sphincter and a Whitehead type of closure effected. Paraffin and pseudo-tubercles with giant cells were found on section of the specimen. (This, it has been thought, could never occur as a result of the present treatment by injection of phenol in oil solutions, when a vegetable oil is used. The report of Rosser, however, brings some uncertainty on this point.)

Sacrococcygeal chordoblastoma was the diagnosis on curettings obtained from a fistula of 9 years' duration in a man of 27. The fistula was incised and radium treatment also given, with complete healing reported 1 year later.

GONORRHEA OF THE RECTUM

The comparative frequency of this infection is emphasized by Hayes[13], not only in blacks but in whites as well. The author reviewed 1,231 cases of gonorrheal urethritis, all under observation in one clinic during a 4-year period. Of these, 5 women and 2 men (a total of 7 cases), developed rectal infection, though they did not have it when first seen in the clinic. Auto-inoculation ranks first as a cause of the disease, though perversions play some part in the etiology. Clinically, the infection is a very acute and painful proctitis, with severe ulcerations of the anal canal and lower rectum, with formation of an unusual amount of granulation tissue. As would be expected, late strictures result. Fissures, fistulae, and abscesses may develop in the acute stage. As in acute urethritis, treatment at first must be very gentle, and only mild antiseptics should be used. Surgery of the fistulae should be delayed until the acute stage

subsides, though it is usually necessary to operate before the infection can be entirely cleared up. Hayes is certain that gonorrhea is the chief factor in causing stricture of the rectum in the colored race, and infers that the same is probably true in the white race also.

Of the 75 cases presented in this article, 58 were white and 17 colored. There were 23 males and 52 females.

ADENOMAS OF THE COLON

Fansler[14] makes some interesting points in his consideration of true adenomas of the colon. He brings out the fact that in no child under ten has he ever seen more than two adenomas, and that multiple polyposis rarely occurs under the age of eighteen. Furthermore he believes the primary change which produces an adenoma is in the submucous lymphoid tissue, and that this enlargement at first is covered with normal epithelium but later, as a result of pressure from beneath, the mucous membrane undergoes adenomatous changes. The variation in size he attributes to proximity to blood supply.

Numerous other papers have appeared in the past two years, emphasizing, for the most part, the precancerous nature of the adenoma, the development of carcinoma in forty to fifty per cent. of cases of multiple polyposis, and the occurrence of more than one carcinoma in an appreciable number of these.

CHORDOTOMY FOR PAIN

Stebbing[15] reports 17 cases in which chordotomy was performed for relief of rectal pain. Two patients died, but the remainder experienced relief which he felt justified the operation. Nearly all were cancer cases. He sectioned both anterolateral tracts at the sixth dorsal level, and also sectioned the posterior roots just above this point to prevent girdle pain. This report should be of interest to those doing rectal work simply as holding forth a method to which recourse may be had in the occasional case where pain can be relieved in no other way. Needless to say, the technique of doing the operation is the property of neurologic surgeons, not of proctologists.

FISTULA

Mr. Ernest Miles[16] has recently contributed a paper on anorectal fistulae which compares very favorably with his work on rectal cancer. The same qualities of careful observation, orderly thinking, and sane deduction characterize his treatment of this subject, and the result is a paper well worth study. Miles classifies fistulae anatomically, based on the location of the abscess which produced them, as follows:

Classification of Fistulae

1. Subcutaneous.
2. Submucous.
3. Intermuscular (between the muscular coats).
4. Pararectal (situated in the lymphatic sinus).
5. Subsphincteric.
6. Ischiorectal.

Each type may present complete, incomplete, and bilateral varieties. Also, there may occasionally be present in an individual 2 or even more separate fistulae, each with its own internal opening. The location of an internal opening varies somewhat, but is found with considerable regularity, according to the type of fistula, as follows:

Location of Internal Opening

1. Pararectal — above the levators, 2 - 3 inches from anus.
2. Submucous—generally just above Hilton's white line.
3. Subsphincteric — at level of valves of Morgagni, either in R.A. quadrant, L.A. quadrant, or posterior midline.
4. Ischiorectal — always in posterior midline between the sphincters.
5. Intermuscular—anywhere in circumference of anal canal but always between sphincters.

When 2 internal openings are found at same level they belong to separate fistulae; when one above the other they belong to a single fistula.

Miles emphasizes, particularly, that when there is a high-lying internal opening, the tract to it may be either submucous, intermuscular, or pararectal. In the first two instances, the tract can be laid open without subsequent impairment of function, but in the latter, the pararectal, to lay open the tract would not only cut through external and internal sphincters but would release the attachment of the levator muscle to the external muscular coat of the bowel. This produces a deep V-shaped defect with resulting permanent incontinence. Failure to recognize the difference in these types accounts for conflicting reports on the advisability of cutting to high-lying openings. The details of diagnosis and operation of the various types of fistulae are taken up and well illustrated.

Based on 1000 cases of fistula seen at the Mayo Clinic, Buie[17] emphasizes certain facts, and states his opinion on a number of points concerning which there has been considerable argument in the past. He finds that the fistulae comprised five per cent. of patients with complaints referable to the anal region. There were 589 males and 411 females. In only 54 cases was tuberculosis quite definitely concerned in the pathology of the fistula, and of these he ob-

tained positive pathologic reports in only 22 cases. Five others had active tuberculosis but negative tissue reports. Buie feels that tuberculous fistulae heal as readily as others, when properly operated. He is opposed to dealing with the rectal connection of an acute abscess, except in an occasional instance, at the time of first draining the abscess, preferring to operate the fistula later when the cavity has shrunken to a small tract.

Buie's technique of fistulectomy embraces the following points—

1. No dilation of anal outlet.
2. A preliminary search for the internal opening with an attempt to probe the tract from within rather than from its external outlet.
3. He rarely uses methylene blue, feeling it to be unnecessary.
4. If no internal opening can be found, the crypt where it formerly was can usually be determined and excised together with the temporarily obliterated tract to it.
5. Incision of the main tract from the internal to the external opening, when possible, rather than the reverse.
6. Favors *excision* of the tract when not too deep or too high in the pelvis, and removes all overhanging edges.
7. Occasional suturing of distal ends of long superficial tracts may be done, but never close to anus.
8. Early removal of packing—72 hours to 5 days.

Further statistics on the series as a whole showed—

More than one operation necessary for cure	61 cases
Average time in hospital	12.7 days
Average time under care	25.8 days
Subsequent incontinence of soft or formed stools	none
Incontinence of liquid stools	6
Failure to cure fistula	none

Cases reported were taken up to 3 months of date of writing the paper. A very large proportion of the cases had been operated upon elsewhere previously, anywhere from once to 15 times.

ANATOMY

An illuminating study of the arterial blood supply of the pelvic colon was carried out by Pope and Buie[18]. Utilizing dye injections, roentgenography, clearing of specimens by the Spalteholtz Method, and by making celluloid casts, they made some new observations which are of considerable interest. Their summary is quoted below.

"The arterial blood is supplied to the rectosigmoid by means of one to five rectosigmoid arteries that arise from the superior hemorrhoidal artery from points 1 or 2 cm. below the promontory of the sacrum to or beyond the point of bifurcation of the superior hemorrhoidal artery.

The rectosigmoid should be defined according to the definite zone that the rectosigmoid arteries describe.

The arterial blood supply to the rectum has been shown to be more profuse than previously described. The blood supply to the rectum through the superior hemorrhoidal arteries, the rectosigmoid arteries, the three to five middle hemorrhoidal arteries, the three to four inferior hemorrhoidal arteries, and the retrorectal plexus of small arteries have been described.

Thus the lower part of the rectum has a much more intimate anastomosis between arteries of inferior mesenteric artery origin and those of pelvic artery. This is materially aided by a profuse system of anastomosis by pelvic arteries that lie without the rectum, which serve as a collateral system of anastomosis to the rectum by reasons of the retrorectal plexus and the middle and inferior hemorrhoidal arteries.

Microscopically a profuse system of arterioles exists that subserosally and submucosally forms a continuous anastomosing network to allow an even distribution of blood to the wall of the bowel from the arterial branches in their finer divisions."

An excellent study was made by Hiller[19] at the Senckenberg Institute for Pathology of the University of Frankfurt, stimulated by two questions of Professor A. V. Moscheowitz. The first related to the fallacy of asserting that the external sphincter fibres originated from the tip of the coccyx when actually they could be palpated coming from the sides of the coccyx. His second query was as to why so many fistulous openings occurred just within the anocutaneous junction at 5 and 7 o'clock. Hiller summarizes briefly numerous works on anal canal musculature, from Quain's Anatomy in 1834 up to the present time. He attributes the great variance in opinions as to the course of the fibres to their use of fixed anatomic material, whereas he, himself, in this study used fresh specimens—12 adults, 1 child of 8 years, and several newborn infants. His results are carefully given and diagrammatically illustrated. They concern muscle fibre distribution, arterial and venous blood supply, and the location of nerves. The lymphatics were not studied. Because of the detailed nature of his findings it does not seem wise to attempt to review them here, but rather to suggest a careful reading of the original article. His summary, however, is quoted.

"The anatomy and physiology of the anal sphincters are reviewed historically as a basis for this study to explain the pathogenesis of anal fistula, abscess, fissure, and postoperative incontinence. The constant location of the internal

opening of anal fistula at 5 or 7 o'clock is explicable by the arrangement of the vessels in the anal triangle, the infection following the perivascular spaces. The anatomy of the external sphincter alone does not explain the origin of fissure, but the great accumulation of fibroelastic terminations of longitudinal bowel fibers, fixing the anterior and posterior commissures is probably a factor. The anatomy of the external sphincter may account for incontinence following stretching or incision of the sphincter, since, when its influence is removed, the efficiency of the internal sphincter becomes reduced because the mechanical stimulus necessary for the maintenance of resistance to a dilating force is lacking. The external sphincter consists neither entirely of fibers encircling the anus nor of fibers extending anteroposteriorly, but is a mixture of the latter type with fibers encircling the anus either anteriorly or posteriorly, in varying proportions."

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THE DOCTOR'S SIDE OF IT

Public interest in questions of health and the cost of medical care has probably never been keener than at present. In the general anxiety to provide for the destitute, criticism often falls heavily upon the doctors. In the current *Harper's* a doctor's wife endeavors to give a correct view of some of his own problems. "Doctors," she asserts, "are used to being misinterpreted, and are too busy to come to their own defense."

The doctor has only one commodity to sell—his time, valuable because of his brains, training and experience. Unlike the manufacturer, he cannot go into mass production of his goods. Training in college, medical school and hospital, and the slow process of building up a practice fill the years until he is 38 or 40. In the next fifteen or twenty years—for the average life of a doctor is 60 years—he must provide for old age and his family if he is ever to do it. He has endless duties besides seeing patients. He must sit on various committees, be active in medical social service, go to distant cities to make addresses, attend medical meetings and keep up with modern medical literature, be present at luncheon or dinner conferences. He is often teaching fifteen or twenty hours a week. He must make his living in the few hours a day that are free from outside activities.

The very fact that the public expects full knowledge and successful treatment from any doctor who is called in is a high compliment to the profession. The patient who complains that three or four doctors were needed before one was found to make a correct diagnosis ignores the time element. Perhaps the first doctor at the later date would have been quite as accurate in interpreting symptoms. The scope of medicine and surgery has so greatly increased in recent years that a diagnosis is no longer a matter of looking at a tongue and taking a pulse. Much unwarranted criticism of physicians may be laid to the fact that each man's health is to himself "so emotional and personal an affair" that he can scarcely judge his doctor with disinterested intelligence. A throbbing earache will warp the soundest judgment.—*New York Times*, February 23, 1932.

A SKIN IRRITATION DUE TO CONTACT WITH BRAZILIAN WALNUT WOOD

In a cabinet-making plant employing about 100 men there developed early in February of this year, according to the United States Public Health Service, a number of cases of inflammation of the exposed portions of the skin of the workers. These cases occurred while the men were working on an order calling for the use of Brazilian walnut, the wood for which was purchased January 28, 1931. Cases continued to develop until a total of eleven had occurred. The symptoms varied from a slight reddening of the skin on the exposed parts to a very severe inflammation of the hands, forearms, entire face and neck. The length of time elapsing between exposure to the wood and development of the symptoms varied from two days to two weeks. It is of interest that several other tropical timbers are known to produce inflammatory reactions on the skin of persons working with it.

Cases also occurred in nine out of ten other plants using this wood. It appears that tolerance to this wood usually develops after exposure. Tests with sawdust from the wood on three volunteers showed a positive susceptibility reaction in each case. This is an interesting example of an unusual problem in industrial hygiene.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 18101*

ABDOMINAL PAIN IN AN AGED MAN

MEDICAL AND SURGICAL DEPARTMENTS

PRESENTATION OF CASE

DR. CLIFFORD C. FRANSEEN**: This is the case of a seventy-four year old druggist who came into the Baker Memorial.

For the past eighteen months he had had severe cramp-like pains radiating across the abdomen just below the level of the umbilicus. They had no relation to meals, disappeared when he lay down and were aggravated by walking. He had been worse for two months before entry. For eighteen months his bowels had been constipated; before that his bowel movements had been normal. Sixteen months before admission he had a gastro-intestinal series done. It was negative. For fifteen months before admission he had had mucus in his stools, occasionally tinged with blood. He had also had bright blood in his stools once a week, but he had had hemorrhoids all this while as well. He had had three attacks of nausea and vomiting several months apart. The last one was about four weeks before entry following a dose of castor oil. He had lost 30 pounds in weight in eighteen months.

When he entered the hospital he was very emaciated. The pupils reacted very sluggishly. The teeth were in very bad condition. The lungs were clear. The heart was negative except for sounds of rather poor quality. There was considerable arteriosclerosis. There were bilateral inguinal herniae and external hemorrhoids present. There was slight tenderness in the left side of the abdomen. No masses were felt at the first examination. A day or two afterwards there was a suggestion of a mass in the left lower abdomen.

A gastro-intestinal series was done. The stomach and duodenum were negative, but the barium enema showed a filling defect at the junction of the sigmoid and the descending colon, where the barium split into two columns, one going into what might have been a sinus and one to the lower bowel.

He ran a low grade septic fever, not much above 102°. He had watery movements once following castor oil. He was a very uncoöperative patient and refused most of the things he was advised to take.

Eight days after admission operation was done. The first night after operation about midnight the patient got out of bed when the nurse was out of the room. Everything went smoothly until the fourth day after operation, when he had ten grains of barbital at bed time, and was also given an ounce of castor oil. The nurse saw him about quarter to ten. I was called a few minutes after ten o'clock and found that he had died on the toilet seat in the bathroom which adjoined his room. He had fallen against the wall. There was no remarkable cyanosis. The dependent hands and feet showed distended veins. When we took him up there was a small stool in the bowl with a few drops of blood. He had some blood at the rectum. When the nurse had seen him a few minutes before ten his only complaint had been some weakness.

CLINICAL DISCUSSION IN THIRD YEAR CLASS

DR. MAURICE FREMONT-SMITH: From the first statement, that the pain was below the umbilicus, we should be able to deduce that there was trouble in the large intestine and not in the small intestine; and trouble in the large intestine in a man of seventy-four is probably cancer.

I saw this man at the Baker Memorial. I do not know the autopsy report, but I know what was found at operation. When I saw him at admission he was an emaciated, sick looking man with a little fever. He had a very spastic abdomen and a mass which felt smooth and hard to the left of and just below the umbilicus. My reaction was as follows: intestinal obstruction in a man seventy-four years old, a mass:—cancer, inoperable. Any fever that he might have was I thought a secondary infection in a malignant condition. The fact that he had had a fistula in ano two years before admission made me wonder whether it was cancer of the rectum. When I did a rectal examination he had extreme pain because of hemorrhoids. The prostate was slightly enlarged. When I put my finger up the rectum, at the very tip I felt a mass. That is of course just where cancer of the rectum should be. I did not know then whether he had cancer of the rectum which had metastasized or simply cancer of the large intestine, but I thought he had cancer.

There was one other possibility of which I think I should speak now. Dr. Miller saw the patient with me. He was not sure that it was a case

*The following report gives the essentials of two discussions, one in Dr. Cabot's Third Year Class, one at a conference of the hospital staff.

**Junior interne on the West Surgical service.

of cancer; he thought it might be abscess. On that basis he felt it was justifiable to go in; he felt that it was justifiable to go in anyway even if it was cancer. If it was abscess, where did it come from? I suppose a diverticulitis of the sigmoid with infection going through into the peritoneum and becoming localized could cause the sort of abscess Dr. Miller was expecting to find. Might diverticulitis also explain the bladder infection?—because sometimes we get a sinus into the bladder from such an abscess. More often we have simply irritation of the bladder, so that we have urinary symptoms from diverticulitis of the sigmoid without sinus formation. Here is a man of seventy-four. Probably the median lobe of the prostate is enlarged, and it is perfectly natural to have residual urine which will get infected. He could have cystitis on the basis of that alone.

The x-rays are really very extraordinary.

Dr. George W. Holmes: The note states that the barium enema did not fill the cecum and the proximal part of the colon. Do you know whether or not he had a meal by mouth?

Dr. Fremont-Smith: Yes, he did have barium by mouth.

Dr. Holmes: The cecum is well filled and there is some barium in the appendix. It looks like a normal colon except for this region where there is a finger-like area of mottled dullness. I see nothing abnormal in the small bowel. There is a good deal of spasm in the colon. There are bud-like projections from the colon which are probably due to diverticula. The splitting of the stream is not demonstrated on any of these films. Such a finding would suggest a fistula between the colon and some other part of the bowel.

As far as these pictures go the appearance could be due to diverticulitis alone. When we have diverticulitis with abscess formation we may also have cancer, but I do not see anything here to help distinguish it. I should say he has diverticulitis with abscess or with an inflammatory reaction at least. He may or may not have cancer.

Dr. Fremont-Smith: Is that filling defect not characteristic of anything? Might it be chronic inflammatory?

Dr. Holmes: Yes, the defect could be due to a chronic inflammatory process.

Dr. Fremont-Smith: Are not those diverticula very high?

Dr. Holmes: Diverticula may occur anywhere in the colon. They are rarely found in this part of the colon.

[Dr. Franseen: Operation was done under spinal anesthesia. An incision three inches long was made over the region of the sigmoid. The peritoneal cavity was not opened, but two cavities were encountered which contained altogether about two ounces of pus. They were simply drained and the patient was sent back to the ward.

The diagnosis then was thought to be diverticulitis with abscess formation and not carcinoma. The differential diagnosis had rested between the two.]

Dr. Fremont-Smith: It seemed to amount to nothing as an operation. The peritoneal cavity was not opened. The patient was back in bed in a very short time.

He had taken castor oil before he came to the hospital. When his bowels did not move after operation he wanted castor oil and we did not see why he should not have it, because we had done nothing except open a localized abscess. So we gave him castor oil.

What was the cause of death? Can we tell anything from those drops of blood at the rectum? The only thing I can think of is that he had been straining at stool at the time of death. He may have died a purely cardiac death. He may have had cerebral hemorrhage. He may have had a pulmonary infarct. I think the previous history makes that seem the most likely cause of death, because he must have had a good deal of infection in relation to his veins. This is likely to cause thrombosis in the veins, and of course a thrombus in a vein might break off and go into the lung. On the other hand one would expect him to be more cyanotic if he had a pulmonary infarct. I do not know what was the immediate cause of death. I believe he had diverticulitis and probably not cancer, but that is absolutely a guess. I used to think some time ago that if a person had diverticulitis he would be less likely to have cancer, but I now believe that is not true, that perhaps one is more likely to have cancer if one has diverticulitis than if one does not have it. I do not believe that the operation had anything to do with his death unless perhaps by the speeding up of the circulation through excitement.

Clinical Discussion

at hospital staff conference

Dr. Franseen: We were trying to make a diagnosis at the time the patient died, and debated whether this could be a pulmonary embolus or emboli or cerebral hemorrhage. We thought that because his accident had been coincident with a desire to move his bowels and because his inflammation was in the region of the iliac veins the evidence was in favor of a pulmonary embolus. The fact that it was only the fourth day after operation was against this diagnosis.

Dr. Aubrey O. Hampton: This patient had an x-ray examination a year before he entered the hospital. At the first examination he had the typical x-ray appearance of diverticulitis with the characteristic saw-tooth spasm and external

pockets. We thought that the films showed about the best x-ray example of diverticulitis we could find. The films have been used for lantern slides and teaching purposes. We thought the presence of the saw-tooth contractions of the colon was nearly enough evidence to say that he did not have carcinoma of the colon. If he had carcinoma infiltrating the gut it would not have such elasticity or power to contract. The saw-tooth irregularity would have been gone and we should have had instead an annular lesion.

At the examination after he entered the Baker I did not see the fluoroscopy, so I cannot add much except that the lesion must have been in about the same position as it was a year earlier. We look for gas bubbles when we think of perforation of a diverticulum. I do not see any extrinsic gas bubbles.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Diverticulitis of the sigmoid.
Retroperitoneal abscess.
Pulmonary embolism?

DR. MAURICE FREMONT-SMITH'S DIAGNOSIS

Diverticulitis with abscess formation.
Pulmonary infarct?

ANATOMIC DIAGNOSES

Diverticulitis of the colon at the junction of the sigmoid and the descending colon.
Perforation of two diverticula, with abscess formation.
Pulmonary embolism.
Gall stones.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: We found a definite diverticulitis of the large bowel. The entire descending colon and sigmoid were studded with minute diverticula in the area which Dr Holmes has pointed out to you. Two of these had perforated to form the abscess which Dr. Miller had drained. The abscess lay between the bladder, a loop of small intestine and the colon, essentially in the pelvis. We could readily make out the fistula between the lumen of the gut and the abscess cavity.

The immediate cause of death was a pulmonary embolus of moderate size which occluded half the pulmonary artery to the left lung. Four days is a very short period after operation for a pulmonary embolus. I think the chances are fairly good that there had been venous thrombosis before the operation. In a septic condition of this sort that is by no means impossible.

DR. HAMPTON: By the way, we reported stones in the gall bladder.

DR. MALLORY: There were gall stones.

A PHYSICIAN: Did you find the thrombosis?

DR. MALLORY: No. The vena cava was clear and the larger pelvic veins negative. I think these cases of diverticulitis are very interesting and very important. We seem to have had a rather unusual number of them in the past year, about half a dozen, and a very considerable share of them have been mistaken for malignancy before or sometimes after operation. We had one case in which a colostomy was done four years before death under the impression that the patient had hopeless malignancy, whereas a little more radical surgery might have cured her. It is often extremely difficult even under the conditions of an autopsy to decide whether we are dealing with cancer or diverticulitis.

The age grouping is rather interesting. We tabulated the cases of diverticulitis and cancer of the large bowel in our six thousand autopsies and found that the average age for diverticulitis is about five years higher than that for cancer. As is well known, cases are more than twice as common in males as in females. Diverticulitis is very distinctly a disease of old people in the vast majority of cases. Only two patients had both diverticulitis and cancer.

DR. FREMONT-SMITH: Can you interpret that to mean that if a person has diverticulitis he is more likely to have cancer than if he did not have diverticulitis?

DR. MALLORY: No, I do not believe so.

A STUDENT: How old a process was the abscess?

DR. MALLORY: It is difficult to tell exactly. It was probably a matter of weeks or months.

A STUDENT: Would that account for the weight loss of thirty pounds?

DR. MALLORY: Easily, with chronic sepsis and a certain amount of intestinal obstruction.

CASE 18102

VOMITING AND DROWSINESS OF TWO WEEKS' DURATION

MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. ALFRED O. LUDWIG*: This is the story of a twenty-two year old white married American laborer who entered the hospital complaining of vomiting, headache and drowsiness of two weeks' duration.

One month before entry he had a head cold of about one week's duration associated with sore throat and slight cough. Later his wife said that he had been feeling poorly for two months, though with no definite complaint. Associated with the cold and sore throat was dull pain in the back. Two weeks before entry he was weak and dizzy and had to go to bed. At this time he began to vomit once or twice a day. Since that time he had also had severe frontal headache and some photophobia. He

*Senior interne on the East Medical service.

complained of a very bad taste in his mouth. Eight days before entry a doctor examined his urine and found kidney disease. The output with a large intake of water was very small. Three or four days before entry the patient noticed swelling under the eyes. This definitely increased.

His past history is normal except for tonsillitis two years before this illness.

Physical examination showed a man very drowsy and much slowed mentally. His breath had a definite uriniferous odor. There was edema of the face and eyelids. There were subconjunctival hemorrhages in both eyes. There were several markedly carious teeth. There were a few small axillary, cervical and inguinal glands, and both epitrochlear glands were felt, though not enlarged. The blood pressure was 142/70. The abdomen was distended. There was tenderness in both lower quadrants on deep pressure, and marked costovertebral tenderness, especially on the right. The right epididymis was also slightly tender. The fundi were normal except for marked edema of both eyes. No hemorrhages were noted. When he was seen in the Emergency Ward there was definite twitching of the face.

Laboratory studies on entry showed a small trace of albumin in the urine, 10 white cells and 10 red cells per high power field and a few granular casts. The hemoglobin was 26 per cent, the red cell count 1,930,000, the white cell count 11,900. A smear showed 76 per cent polynuclears and 18 per cent lymphocytes. The red cells appeared normal. The non-protein nitrogen was found to be 220 milligrams. The carbon dioxide combining power was 34.5 volumes per cent.

We diagnosed the case as acute nephritis with uremia and endeavored to produce diuresis by using 25 per cent glucose intravenously. He was given 60 cubic centimeters on the day of entry and another 50 or 60 cubic centimeters the following day. At the same time we gave him enemas of 50 per cent magnesium sulphate and three doses of 3 to 4 cubic centimeters of 25 per cent magnesium sulphate intramuscularly in the hope of combating cerebral uremic symptoms. During his two days in the hospital he put out not more than 8 ounces of urine. Because of the very low blood count we decided on the second day to give up intravenous glucose and try transfusion, and we gave him 500 cubic centimeters of blood. The same day, having caused no diuresis by glucose, we decided to try sodium bicarbonate solution, and gave him 200 cubic centimeters of 2.5 per cent solution. Shortly after this he suddenly developed typical pulmonary edema and died.

A PHYSICIAN: What was the blood pressure?

DR. LUDWIG: It was 140/70.

CLINICAL DISCUSSION

DR. FREDERICK T. LORD: This patient seemed to fall into the group of atypical and rapidly fatal acute glomerular nephritis. His nephritis apparently followed an acute respiratory infection, with a history of tonsillitis some two years before this illness. In view of the history of tonsillitis we discussed the possibility of a chronic nephritis, but there was nothing in the story to suggest it.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Acute glomerular nephritis.
Uremia.
Acute pulmonary edema.

ANATOMIC DIAGNOSES

Subacute glomerular nephritis.
Hypertrophy of the heart.
Passive congestion and edema of the lungs.
Hyperplasia of the bone marrow.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: The autopsy showed slightly enlarged kidneys, weighing 350 grams. The normal weight for him would probably be about 300 grams. They were a little pale. There were scattered petechial hemorrhages over the surface. The capsules still stripped quite readily.

The heart also showed slight hypertrophy, weighing 350 grams.

One thing that has impressed me in the series of nephritis cases here, especially in the adults, is that almost every case of apparently acute glomerular nephritis seems to be very much more chronic when one has a chance to check it up at autopsy than the clinical history would lead one to believe. The history here suggests a bare month's duration, although there was a vague history that he had not been feeling well for two months. He did have an acute infection at the time of the sudden onset of his severe symptoms. On the other hand we have a history of definite tonsillitis two years before admission. The changes in the kidney were advanced enough so that I do not feel at all certain that the process did not start two years rather than one month before his death.

The microscopic sections show even with a low power a definite diminution in the number of tubules and give an impression of slight generalized fibrosis and slight lymphocytic infiltration. With a high power we immediately find that a very large proportion of the glomeruli are partially or completely destroyed. The interstitial tissue is distinctly increased and there is definite atrophy of the tubules. Some of the tubules are dilated and filled with red cells, indicating a continued activity of the

process. Practically no glomeruli can be found anywhere which look as though they had as much as 10 or 15 per cent function left.

DR. JOHN P. MONKS: Do you ever attempt to predict on the basis of microscopic findings whether if the patient had lived he would have developed a chronic nephritis? In other words, do you get microscopic changes at a stage where there are no genito-urinary symptoms?

DR. MALLORY: Yes; I think we see that fairly often in association with streptococcus infection. Evidence of infection dominates the clinical picture so much that attention is not called to the kidney, yet very definite nephritis is found at autopsy. I think those cases would show changes in the urine and blood if one looked for them, but in the case of a patient dying of streptococcus infection one is not apt to focus attention on minor changes. I think one lead that one had in this case as to chronicity is the degree of anemia. A hemoglobin of 26 is not I think consistent with acute nephritis. The process must have been going on for some time.

In almost every case of apparently acute nephritis that we have had in an adult of twenty or over I think it would be safe to double the apparent clinical history and one would still be underestimating the duration of the process. That is not true in acute glomerular nephritis in children, but in adults it seems as though it were almost a regular thing that they have an acute nephritis for a considerable period of time before beginning to recognize any symptoms from it. The two best leads that one gets in detecting the chronicity are usually anemia and above all cardiac hypertrophy. The importance of recognizing the chronicity lies in relation to prognosis. Treatment with magnesium sulphate for instance is undoubtedly very effective in really acute nephritis and could not help in the least in a case like this.

A PHYSICIAN: Did the lungs show any changes?

DR. MALLORY: Only congestion and edema. Except for the kidneys, the heart, and the bone marrow, which showed marked hyperplasia, the autopsy was essentially negative.

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ERGOT AND ERGOTISM

BARGER'S monograph on Ergot and Ergotism to which attention is called in the Book Review column* is of special interest to physicians of Massachusetts. For, as the author points out, a paper read by Oliver Prescott, June 2, 1813, at the meeting of the Massachusetts Medical Society at Boston had great influence on the introduction of ergot into regular medicine, not only in the United States, but in Europe. Ergot had been used by midwives in various European countries in the eighteenth century and Dr. John Stearns of Saratoga County, New York, had published in the Medical Repository of New York in 1808 an "Account of the Pulvis Parturiens" in the form of a letter to Dr. Samuel Akerly of New York. Dr. Stearns in his letter to Dr. Akerly remarked: "On examining a granary where rye is stored, you will be able to procure a sufficient quantity from among that grain. Rye which grows in low, wet ground yields it in greatest abundance." Dr. Akerly, in 1809 published, in the form of a letter, his experience with ergot in more than a hundred parturient patients.

Dr. Prescott published the paper which he had presented at the Massachusetts Medical Society in pamphlet form; it was reprinted in Philadelphia and London and was translated into French and German, and was published in full, so far as relates to the medicinal properties of ergot, in the French "Dictionaire des Sciences Médicales."

Dr. Jacob Bigelow, in the *New England Journal of Medicine and Surgery*, 1813, was the first to point out that harm may be done by the new drug. The discussion was continued by Lyman Spaulding (the founder of the United States Pharmacopeia) and Barger remarks: "The United States Pharmacopeia was quite fittingly the first official publication to admit ergot" (in 1820). This is but the beginning of the fascinating story.

*Page 544.

THE LIBRARY OF THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY

THE Surgeon General's Library, begun in 1818, has grown to be the most important medical library in the world. Its magnificent catalogue, begun in 1880, now embraces forty-seven large volumes, the greatest medical bibliography ever published and of inestimable worth to physicians throughout the civilized world. As pointed out in a report from the Surgeon General's Office*, for many years the Library was not a lending institution; it was used largely by physicians coming to Washington to consult books. Since the World War, however, it has loaned books all over the United States and consequently comparatively few people come to the building itself except those who wish to consult very rare books which are not lent. So great has been this change that it is astonishing to read that only seventy-two individuals from outside Washington registered as readers in the Library from October 1, 1930 to October 1, 1931. During the same period, however, the Library on its loan service sent out over 11,000 volumes. The character of this great library, therefore, particularly in its relation to the medical public, has distinctly changed in the last two decades.

For many years the Library has been housed in an old brick building, which now must be razed in order that the site may be used for other Government structures. The Library, therefore, must be moved to a new site in the near future and naturally a place has been made for it at the new Army Medical Center. This site is available at no further cost to the Government, thanks to appropriation bills passed in

*No. 171—SGO—12/23/31.

1919 and 1922. For some surprising reason there has been opposition to moving the Library to the Army Medical Center and this has found expression in a resolution passed at the last meeting of the American Medical Association, June 9, 1931. The resolution, which was offered by Dr. C. B. Wright of Minnesota, pointed out that it would be a serious handicap to the medical profession if the Library were moved to the Army Medical Center, the principal argument used against such a transfer being that the new site is five or six miles from the Union Station and the leading hotels in Washington. It was proposed that a new fireproof building be erected as close as practicable to the Congressional Library, a location which would be easy of access to the medical profession coming to Washington to consult the books. This proposal was approved by the Committee of the American Medical Association on Medical Education, a committee consisting of Drs. N. P. Van Etten, Chairman, John O. Polak, Irvin Abell, and H. G. Stetson*. The Surgeon General believes, according to a letter issued December 23, 1931, that the majority of the delegates did not understand the serious import of such a proposal to the Medical Department of the Army. The resolution, moreover, was put forward and adopted without the knowledge of the Surgeon General and without consultation with his representatives at the meeting. The only advantage claimed for a location near the Library of Congress is that it would be slightly more convenient to out-of-town patrons and he points out that there have been less than a hundred such patrons in the course of the last year. To purchase a new site, moreover, near the Congressional Library would be a great expense to the Government, inconvenient of access to the large group of medical officers in the various departments at Washington and to the majority of physicians in the District of Columbia. It would also mean that a plan, maturing for over thirty years for the completion of a great Army Medical Center, will be frustrated because the Library, an essential part of it, will not be included in the group of buildings.

It would appear, therefore, that the arguments of the Surgeon General were not sufficiently known to the Committee on Medical Education of the American Medical Association when they passed their resolution in 1931. It is not too late, however, to rectify the mistake and it is hoped that the delegates, particularly those from Massachusetts, including the President of the Massachusetts Medical Society, will reconsider this matter and adopt an appropriate course consistent with the weighted opinion of the Surgeon General of the United States Army.

*J. A. M. A. 96:2120-2121, June 20, 1931.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

VIETS, HENRY R. B.Sc., M.D. Harvard University Medical School 1916. Assistant Neurologist, Massachusetts General Hospital. Instructor in Neurology, Harvard Medical School. Consulting Neurologist, Massachusetts Eye and Ear Infirmary, and the Newton Hospital. Neurologist, Long Island Hospital. His subject is "The Intracistern Serum Treatment of Neurosyphilis." Page 491. Address: 6 Commonwealth Avenue, Boston.

CROSBIE, ARTHUR H. A.B., M.D. Harvard University Medical School 1906. F.A.C.S. Consulting Urologist, Cambridge Hospital; St. Elizabeth's Hospital; Massachusetts Women's Hospital, and Boston Dispensary. Associate Urologist, Beth Israel Hospital. His subject is "Prostatic Pitfalls." Page 500. Address: 520 Commonwealth Avenue, Boston.

MCCLURE, CHARLES W. M.D. Ohio State University College of Medicine, Columbus 1910. Member Senior Staff Evans Memorial. Chief of Gastrointestinal Division of Department of Biochemical Research, Evans Memorial. Gastroenterologist to the Out-Patient Department, Massachusetts Memorial Hospitals. Physician to the Massachusetts Memorial Hospitals. Assistant Professor of Medicine, Boston University School of Medicine. Address: 416 Marlborough Street, Boston. Associated with him is:

HUNTSINGER, MILDRED E. M.A. Chemist to the Department of Biochemical Research, Evans Memorial, Massachusetts Memorial Hospitals. Address: 62 Queensberry Street, Boston. Their subject is "Pathologic-Physiologic Studies on Changes in the External Secretions of the Pancreas and Liver." Page 507.

HAYDEN, E. PARKER. A.B., M.D. Columbia University College of Physicians and Surgeons 1919. F.A.C.S. Surgeon to Out-Patients, Massachusetts General Hospital, Collis P. Huntington Memorial Hospital and Palmer Memorial Hospital. Assistant in Surgery, Harvard Medical School. His subject is "Progress in Proctology." Page 516. Address: 270 Commonwealth Avenue, Boston.

MASSACHUSETTS LEGISLATIVE NOTES

THE HEARING ON THE CHIROPRACTIC BILL

On Wednesday, March 2, the arguments in favor of the Chiropractic Bill were heard in the State House and unfortunate complications existed in the necessity of having to adjourn the hearing which was originally scheduled for the Gardner

Auditorium to a comparatively small room on the fourth floor. This very seriously interrupted the proceedings because the number in attendance exceeded the capacity of this room very many times so that the crowding, the remonstrances to the Committee and suggestions for adjournment held up progress for a considerable time until it was found that no other accommodations could be secured. Hundreds, who were unable to gain admission to the room, crowded the corridors. When it finally became evident that no other space could be provided for the morning session, the Committee listened to the arguments which were presented by the counsel for the chiropractors and to the claims by two representatives of this cult and a clergyman who had great enthusiasm in presenting his endorsement of the movement. This occupied a very large part of the morning session and, after the proponents had exhausted their material and time, the opponents were given an opportunity to present their arguments.

Dr. Thomas J. O'Brien conducted the hearing and in opening told the Committee that, although thousands had been recorded in favor of the measure, he was able to present the signatures of a large number of citizens of the Commonwealth who were not in accord with the ambitions of the chiropractors and deposited with the committee a package containing names of citizens throughout the State, representatives of various educational institutions such as the colleges, many schools, the Commissioner of Education, members of the legislature and other prominent people. He outlined the general scope of the hearing and called upon Dr. Charles E. Mongan of Somerville to amplify the arguments which he had presented at a previous meeting of the National Civic Federation (Woman's Department, Massachusetts Section). In a most eloquent and forceful appeal, Dr. Mongan showed the lack of logic on the part of the chiropractors in asking the State of Massachusetts to provide for different forms of medical practice through legislative enactment basing his reasoning on the illogical suggestion that lawyers might as well ask for legislative authority to practice in certain limited fields such as probate law, for example. He explained very clearly the effect of introducing complications in medical registration laws in this State and met the argument, which had been advanced that because chiropractors are registered in a large number of states of the Union they should be registered here, by reference to the independence of the State of Massachusetts in its opposition to the Sheppard-Towner bill affirming that Massachusetts has always maintained its own standards and felt that it needed no dictation from other states.

Several of the members of the Committee asked questions which enabled Dr. Mongan to explain more fuily many of the arguments which he presented. He was followed by Miss Margaret Nugent, Executive Secretary of the National Civic Federation, who reported that after the arguments of Dr. Mongan and the lawyer for the chiropractors had been heard, a vote was taken which showed a large majority of the members of that organization adverse to the endorsement of chiropractic by the State of Massachusetts. These votes were the expression of women who are not only representatives of the leisure classes but also of those engaged in gainful occupations.

At this time the meeting was adjourned to be reconvened in the afternoon in the Gardner Auditorium at which time Dr. O'Brien introduced Dr. Halbert G. Stetson, President of the Massachusetts Medical Society, Dr. Charles Wakeling representing the Massachusetts Osteopathic Medical Society, Dr. Robert B. Greenough, Ex-President of the Massachusetts Medical Society, Dr. Stephen Rushmore, Secretary of the Massachusetts Board of Registration in Medicine, Dr. George H. Bigelow, State Commissioner of Health of Massachusetts, Dr. Seth M. Fitchet, Dr. Hilbert F. Day and Mr. Frank Kiernan. These men amplified and emphasized the several appropriate objections to the bill, Dr. Rushmore especially taking up the legal and administrative features of the inclusion of a new form of practice of medicine thereby imposing further burden on the State in providing for examinations and registration. The committee in charge of the hearing brought out many personal objections to the attitude of the opponents of the bill which were logically answered by Dr. Rushmore and the other speakers. Taken, all in all, the opposition was on a very high plane with cogent arguments against any lowering of the standards of practice of those who desire to treat the sick and the likelihood of recognition of this particular cult opening the door to, and encouraging the appeal of, other cults because if one special line of limited treatment is endorsed by the State of Massachusetts, it would be an invitation to fifty or sixty other cults to demand equal recognition, and "confusion would be worse confounded".

One member of the Committee was desirous of having representatives of the medical profession agree to some compromise measure which would allow the chiropractors to appear before the Board of Registration in Medicine and thereby prevent the extension of this campaign to the citizens of the Commonwealth through the inclusion of the question on the ballot in the November election. This does not seem to be a dignified attitude.

In closing the hearing Dr. O'Brien emphasized some of the important points and was content to leave the matter in the hands of the Committee.

MISCELLANY

HEALTH PROBLEMS OF OLD AGE

The question seems pertinent as to whether the declining years of life may reasonably demand the development of specialists in order that old age may be postponed and usefulness of maturity increased. Although the process of decay is one of the natural changes to be expected, many people

retain the elements of youth even beyond the recognized period of average longevity and it is most natural that there should be developed a better understanding of the degeneration which takes place with increasing years.

It is recognized that we inherit from our parents a certain structural pattern and functional tendencies especially those of the nervous system and certain evidences of deficient oxidation. Such tendencies are passed on from one generation to another, but by the control of environment, diet, recreation and leisure very much may be done to increase the enjoyment and usefulness of later life. An especially well-recognized function of maturity is the example which one may give to those of younger years. We may find that health in old age is a comforting, gratifying and harmonious experience although entirely different from the refreshing and delightful activities of youth.

The increase in longevity gives every promise of an addition to this period which will be pleasing with added comfort to the individual and all who are interested in him.

Rejuvenescence is a myth, but the pathology of age may be very materially modified by intelligent control. It seems reasonable to suppose that there is a useful and remunerative field in medicine for the specialist who may devote himself to problems of declining years.

A RADIO MESSAGE PREPARED AND SPONSORED BY THE COMMITTEE ON PUBLIC EDUCATION OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE DEPARTMENT OF PUBLIC HEALTH

Do Your Feet Hurt?*

Do your feet hurt? Do they feel stiff and sore when you get up, then better for a few hours, and then tired and perhaps painful toward the end of the day? Even if the feet themselves do not hurt, do you wonder why you are so weary in the evening, though your day's work may not have been very hard nor your worries very great?

If you seem to be well otherwise, it is worth your while to look at a pair of well-worn everyday shoes. If those of you who are interested will now take off your shoes and place them so that you can look down on them with the inner sides of their soles and heels parallel and about two inches apart, you will understand this talk better.

As you look down on the shoes, you should notice first whether the uppers bulge toward each other on their inner sides. If they do, your feet in standing and walking are not taking the ground as they should and the main or long arches of the feet, which should be much higher on the inner than on the outer sides, are slumping and are likely to be strained. This is what doctors call fallen arches.

Now pick up the shoes and notice how the soles and heels are wearing. If the soles are wearing down more on the inner than on the outer sides, it means that more weight is being constantly borne on the inner sides, and your tread is not normal.

When you look at the heels, most of you will find that they are wearing off more at the back and outer sides than at the front corners. This wear is not very important, for our weight is not borne until we come down solidly on the front part of our heels. If in taking a step we leave the ground with the foot turned in, or what is called "pigeon toed", we shall wear off the forward outer corners of our heels. But if we toe out and the inner sides of our feet, that is, the long arches, slump, we shall wear off the forward inner corners of the heels more than the outer corners. You will see that the way the forward corners of our heels wear is more important than the way the back of our heels wear. There is less wear at the front of our heels because at the front there is less slide and scuff. If you find that the inner forward corner of a heel is more rounded and worn down than the outer corner, you know that the foot is taking and leaving the ground improperly and that the arches of the foot are being subjected to strains which may become painful. In countries where shoes are still made by cobblers from a pencil pattern of the sole of the foot, there is very little foot trouble. Such shoes have no style and most women and many men feel it is more important to be fashionable than comfortable. We cannot blame the shoe manufacturers for making what they can sell. The industry in America deserves great credit for providing us with such a variety of shapes and sizes that almost any foot may be well fitted to a ready-made shoe. The fault lies with us in attempting to crowd our feet into too short and too narrow shoes. Corns and bunions and deformed toes are almost all caused by this practice. We look down upon the Chinese ladies whose feet are bound when they are young so that they may wear tiny shoes when they grow up. They are probably more comfortable than many American women who try to force their unbound fully developed feet into tight, pointed-toed and high-heeled shoes. Ready-made shoes of good undeforming and uncramping designs can be purchased at almost any large shoe store. We were never meant to wear high heels. They undoubtedly relieve strain on one of the foot arches, but put more strain on the other and on the ball of the foot. They deform the toes and cause the important group of calf muscles to shorten. They are like jumping from the frying pan into the fire. The bearing surface of high heels is so small that when they are worn on uneven ground, the ankles are likely to be turned and sprained.

There are two arches in the foot. One is the main or longitudinal arch on the inner side between the heel and the great toe joint. The other is the shallow front or transverse arch, running across the ball of the foot between the great toe joint and the

*Broadcast January 21, 1932, Station WBZA—4:50 P. M.

little toe joint. This is sometimes called the metatarsal arch.

The integrity of both these arches depends upon ligaments and the action of the muscles of the lower leg and foot to support them. They are formed by the bones of the foot, but there is no bony keystone to the arches to keep them up if the ligaments give way or the muscles are too weak or do not act properly. If this support is not adequate, the long arch will sag and the front arch will disappear and calluses form on the ball of the foot, and we may expect foot troubles and pain. If the muscles are strong and well-balanced, even feet that appear flat in standing may be most excellent weight-bearing machines, for they will take the ground properly if we do not cramp them by stylish shoes.

If your feet do hurt or if you do not know why you are so tired at the end of the day, and if you find that your shoes tell the tale of faulty weight-bearing lines, what should you do about it?

First, be sure that the shoes you use for walking fit your feet and do not cramp them; that they are long enough and wide enough to allow free toe action, but not too wide just back of the great toe joint or at the heel so that they slip. The heels should not be high and should have an ample bearing surface. When you place the two shoes together so that the inner sides of the soles are next each other, the lines made by these inner sides should be almost parallel from the heel to the end of the great toe. If when the shoes are in this position with the heels and soles touching each other, you find that the toes of your shoes separate and form a V, you will know that your great toes are being forced outward. Such shoes make it impossible for your feet to take the ground properly, and after a while the great toe joints will become permanently enlarged and painful. You should obtain a pair of shoes for your working hours that have straighter, more parallel lines on their inner sides when you place them side by side.

Should these shoes be flexible arched or stiff shanked? That depends upon what your muscle balance is and whether your arches have already become strained. Only a doctor can tell you this. A normal foot is better with just as little shoe arch support as possible, but if your shoes show a bulge on the inner sides and the forward inner corners of the heels are worn off more than the forward outer corners, you probably need a fairly stiff shank. In addition, it is probably wise for you to get your cobbler to put on what are known as Thomas or orthopaedic heels of rubber or leather. These heels are carried forward about half an inch farther on their inner than on their outer sides and are made from 1/8 to 1/4 of an inch higher on their inner than on their outer sides. Rubber heels of this type are carried by most cobblers. Such heels help to prop up the arches. Do not buy ready-made arch supports. You are likely to waste your money. As a rule they do not distribute the weight properly and may do your feet real harm.

Try to toe in when you walk. When you get up in the morning, not when you are tired at night, pick up marbles with your toes one after the other, beginning with six with each foot and increasing two marbles a day for two weeks. As you pick them up, turn the foot sharply inward and pull it upward, depositing the marbles in an empty shoe. Never turn the foot outward or downward. This exercise will help to restore the proper balance of the muscles and take the strain off the sagging long and front arches.

If you do not begin to feel less tired and your feet do not begin to hurt less in two weeks, it is best for you to consult your doctor, for your feet may need more special treatment than we can describe in this brief talk, and something else besides strain of the arches may be the reason why your feet hurt.

There are two other causes of pain in the feet. One of these is what is commonly called bunion or enlargement and inflammation of the great toe joint, and the other is known as hammer toe, usually of the second toe. Enlargement of the great toe joint and the bending of the great toe toward the second toe are usually caused by short and pointed-toed shoes. There is often reddening and inflammation about the great toe joint when the trouble starts and the continued irritation makes the bone enlarge. If the early signs are relieved by wearing longer and wider shoes with straight inside lines, inflammation and enlargement may disappear. When the bone itself has grown bigger and the toe is sharply bent toward the second toe, nothing but the constant wearing of ugly shoes or an operation can give comfort.

Hammer toes are toes which cannot be straightened, which are bent in the middle so that the end of the toe strikes the ground like a hammer. They hump up at the second joint on the top of which is usually a corn. Short shoes may cause these, also short and narrow shoes always make them worse, but many people are born with these contracted toes which grow worse with the shoe-wearing years. Chiropodists can make these comfortable by padding them, but a slight operation on the bone is the only way of permanently curing them.

THE PREVENTION OF ONCHOCERCIASIS

The Department of Tropical Medicine at Harvard University is now engaged in the study of onchocerciasis, a parasitic infection now extremely prevalent in Guatemala coffee plantations. Dr. Strong, who conducted a survey of Liberia two years ago, observed a similar disease and has been selected to head the Guatemala expedition with the backing of the Department of Tropical Medicine and the Medical Department of the United Fruit Company. It is claimed that the infection is transmitted by the

several varieties of coffee flies and is found on the heads of the natives. This worm is of the type of the filaria and is a very serious infection resulting in a large area of distribution throughout the skin. The Government of Guatemala is at present too poor to finance an effective program for eliminating the disease and the most probable source of aid seems to lie in the generous contributions of American foundations or other institutions. It is interesting to note that Dr. George Shattuck is working with Dr. Strong in dealing with this disease.

THE INCREASE OF ADMISSION TO HOSPITALS FOR THE TUBERCULOUS

New York City reports that during the last year there has been a very definite increase in the number of patients admitted to the hospitals for the tuberculous, under the supervision of New York authorities. Increase is attributed both to added economic pressure and to public education which has resulted in a greater demand for hospitalization. There is a feeling that the result of education will lead to a greater demand for hospitalization of this class which will require added institutional facilities.

THE LATE DR. WILLY MEYER

The recent announcement of the death of Dr. Willy Meyer will be of interest to surgeons throughout the country because of his standing as one of the most industrious students of cancer problems. The New York papers have published statements regarding the popularity of Dr. Meyer which will find a ready response in the hearts of American surgeons. His reputation extended beyond the confines of his profession and he was known as a self-sacrificing, loyal friend interested in all civic problems.

SOME INTERESTING FEATURES INCIDENT TO HEART DISEASE

According to Dr. T. Duckett Jones, Research Director of the House of the Good Samaritan, in a lecture recently delivered at the Harvard Medical School, more than one child in every two hundred Boston school children has heart disease. Dr. Jones further considered the economic burden with reference to the features of this disability and discussed the symptoms of inflammatory rheumatism of middle and later life. He showed that heart disease may occur in an individual who has a history of frequent sore throat or tonsillitis or it may result in a patient who has a history of chorea and the large majority of cases occur initially between the ages of five and fifteen.

He paid especial attention to the several forms of rheumatic fever, running from the month or six weeks' long period, the monocyclic, to the continuous form which may run on for years. He described the symptomatic features of the disease and said that, in warmer climates, rheumatic fever was almost unknown. Unfortunately it is largely found among the industrial classes where overcrowding, little sunlight, dampness and respiratory infection exist. Although the cause has not yet been proved, sanitary care and relief from exposure will very often bring favorable results. After recovery from infection the patient should limit his activities making them compatible with the general conditions of the body and especially with the degree of heart damage which has resulted from the disease.

AN HONOR TO DR. A. W. ROWE

Dr. Allan Winter Rowe, Director of Research at the Evans Memorial of the Massachusetts Memorial Hospitals and Professor of Physiological Chemistry in the Boston University School of Medicine, has been nominated for President of the Alumni Association of the Massachusetts Institute of Technology.

Dr. Rowe will succeed Bradley Dewey whose term will expire in June. He was graduated from Technology in 1901 and for many years has taken an interest in alumni affairs. After graduation from the Institute Dr. Rowe continued research at Wesleyan University for two years and then went to Germany for two years of further study at the University of Goettingen where he was awarded his degree of Ph.D. Since 1908 he has been Professor of Chemistry at Boston University and has been affiliated with the graduate school of Harvard University. Dr. Rowe is an honorary fellow of the American Medical Association and of the Massachusetts Medical Society; a fellow of the American Academy of Arts and Sciences and of the American Association for the Advancement of Science; a member of the American, French, and English Chemical Societies, the American and French Biochemical Societies, the American Physical Society, the American Physiological Society, the Society for Experimental Biology and Medicine, and chairman of the Council of the Society for the Study of Internal Secretions.

THE EVIL EFFECTS OF NOISE

The American Electrical Railway Engineering Association has appointed a committee to study the problem of noise and vibration. It is believed that the prevention of noise is largely an engineering problem and, although there are certain legal restrictions on noise in many cities, the problems involved will require a definite application of scientific research in order to set up standards for measuring the quantity and quality of noise in relation to the individual. A certain amount of work has been done by the Noise Commission of the City of New York and it has been found from more than 7,000 readings at many different places that the intensity in certain localities is sufficient to prevent the appreciation of ordinary conversation. It will be a great benefit and comfort to people, especially in the cities, when the disturbances of noise can be eliminated.

HONOR TO DR. KAZANJIAN

At a recent meeting of the Rhode Island State Dental Society Dr. Vasaztad Kazanjian of Boston was awarded the medal and scroll of the Rhode Island State Dental Society for outstanding achievements in his practice. Dr. Kazanjian holds the position of Assistant Laryngologist at the Harvard Medical School and contributed outstanding work as a surgeon with the Harvard unit, British Expeditionary Force during the World War, receiving a decoration from King George for his services.

THE CHOICE OF PHYSICIANS BY INDUSTRIAL ACCIDENT INSURANCE PATIENTS

In New York a controversy is being maintained between those interested in the workmen's compensation insurance and the officials in charge of administration of the law. The insurance authorities are very anxious to eliminate the free choice of physicians by the patient from the requirements as set forth in the act, the argument being that in this class of cases comparatively few practitioners are able to meet the demands of the ordinary emergency problems. In Massachusetts this elimination of the right of a patient to secure attendance by the physician of his choice would be antagonized.

MORTALITY RATES

Telegraphic returns from 83 cities with a total population of thirty-six million for the week ending February 27, indicate a mortality rate of 12.9 as against a rate of 14.0 for the corresponding week of last year. The highest rate (32.9) appears for Wilmington, Del., and the lowest (5.3) for Akron, Ohio. The highest infant mortality rate (14.4) appears for New Bedford, Mass., and the lowest for Bridgeport, Conn., Fall River, Mass., Grand Rapids, Mich., Long Beach, Calif., Miami, Fla., Somerville, Mass., and Wilmington, Del., which reported no infant mortality.

The annual rate for 83 cities is 12.1 for the eight weeks of 1932, as against a rate of 14.3 for the corresponding period of the previous year.

IS THERE A NECESSITY FOR THE ANNUAL REGISTRATION OF MEMBERS OF THE SEVERAL PROFESSIONS?

An article in the *New York Times* recently propounded the necessity of annual registration of lawyers alleging that there is so much irregularity in that profession that there should be given to the proper authorities the responsibility of repeated registration with the expectation that members who are guilty of irregularities would be denied continued standing in this particular profession. If this practice becomes general it will undoubtedly lead to universal adoption by the medical profession, for although it has influenced many of the states of the Union to require annual or other periodic registrations it has not been adopted in a considerable number of states. The argument for physicians is practically the same as that set forth for lawyers in that it is desirable to have on record every year or two the number of those who are legally entitled to practice. Physicians usually object to any more restrictions or requirements for licensure, but if it can be clearly shown that this is necessary it will undoubtedly receive the support of the majority of the physicians in this State, with the hope, however, that the conditions imposed will not be burdensome.

DR. SHERIDAN LECTURES AT THE BOSTON TEACHERS COLLEGE

Dr. Philip E. A. Sheridan, Assistant Visiting Surgeon for Diseases of the Ear, Nose and Throat at the Boston City Hospital, lectured recently at the Boston Teachers College. His subject was "What the School Hygiene Department of Boston Is Doing for the Deaf and Hard of Hearing Child."

$25,000 FOR McGILL CANCER RESEARCH

An anonymous gift of $25,000 has been received by the McGill University for further study and research of cancer. Part of this grant will be used to establish an outdoor clinic at the Royal Victoria Hospital.

ANTI-VIVISECTION ACTIVITIES

Recent meetings of the Anti-Vivisection Society indicate considerable activity in behalf of the bill for the exemption of dogs from vivisection in Massachusetts. The program consists in getting signatures to petitions and already many have been secured.

CORRESPONDENCE

"AN ANOMALY"

Mr. Editor,

Recently at a meeting of the Boston City Council a member complained about a shortage of nurses at the Boston City Hospital, and put in an order in the Council for an increase in the number of nurses at the Hospital. The order was tabled.

A few days ago, I was visiting a patient of mine, who had a small baby. She informed me that she had several visits from an able-bodied nurse of the Boston Board of Health, who urged her, almost to annoyance, to bring her offspring to the Baby Hygiene Clinic to have it weighed. This patient had scales of her own. She asked my advice as to what procedure she should follow in regard to weighing the baby. I told her that I never weighed my own children and that I did not know of any physician that had his children weighed regularly, and that if the child appeared healthy to leave it alone.

The woman inquired, if weighing was not necessary why the City was spending so much money, soliciting cases for the Baby Hygiene Clinics.

I told the lady that the "social uplifters" had

foisted this Baby Hygiene business on the taxpayers of the City of Boston, when they found that it was too expensive to finance it themselves.

Senator Hollis, of New Hampshire, said the other day, that soon the "Welfare Faddists" would have a Bureau to inspect the back parts of schoolboys' ears, at the expense of the taxpayers. I have no doubt the Boston Board of Health would enter whole-heartedly into this new fad.

Seriously, is it not disgraceful to have nurses chasing through the city at a great expense to the taxpayers, in worse than unnecessary work, while they could be usefully and needfully employed at our city institutions?

CHARLES MALONE, M.D.

46 St. John Street,
Jamaica Plain, Mass.

City of Boston
Health Department
City Hall Annex

February 27, 1932.

Editor, *New England Journal of Medicine*,
8 The Fenway,
Boston, Massachusetts.

Dear Sir,

I deem it my duty, in view of my responsibility as Director of the Division of Child Hygiene of the Boston Health Department, to answer Dr. Malone's letter without, however, any intent or desire on my part to enter any controversy with him.

It is pertinent to call attention to the fact that the child hygiene program of our Health Department which has for its objective the promotion of child health is neither unique nor novel in its content. We are rather following programs and procedures carried on by Health Departments not only all over the United States but in other parts of the world. The things we are trying to do have the endorsement of the best minds in the pediatric field and may I stress the fact that the medical service carried on at the clinics is absolutely preventive in its scope and performed by pediatricians selected by the Harvard, Tufts and Boston University Medical Schools.

We are quite confident that the marked reduction in the infant mortality rate in Boston during recent years may at least, in a measure, be said to be due to the constant campaigns waged not only by the nurses and clinics Dr. Malone alludes to but also to the efforts of those physicians who do believe in weighing children periodically and in the dissemination of advice to those mothers who very properly come to their offices with their children seeking the same.

The concern of the Department of Health, and also of many members of the medical profession as well, is that more physicians should engage themselves in the very significant and important practice of encouraging more mothers to come to them for such services and advice. When that time arrives, the Health Department will be glad to have less to do in this field and Dr. Malone, I hope, will have less about which to complain.

Very sincerely yours,

CHARLES F. WILINSKY,
Deputy Health Commissioner in Charge of Health Units and Child Hygiene.

A LETTER OBJECTING TO LEGISLATION ENDORSING CHIROPRACTIC

City of Boston
Health Department
City Hall Annex

February 29, 1932.

The Committee on State Administration,
General Court of Massachusetts,
Boston, Mass.

Gentlemen:

In 1797, the General Court of the Commonwealth created local Boards of Health and charged them with the duty of promoting the health of the people and preventing needless deaths.

Since 1797, methods intended to accomplish this purpose have changed from time to time. Changes have been influenced to some extent by additional legislation and by Court decisions, but in the main the responsible public health officials have been left to determine their methods in the light of experience and progress in scientific knowledge.

In the performance of an official function thus contemplated in the long-established legislative policy of the Commonwealth I am submitting, in the interest of the health of the people of Boston, my protest against the enactment of House Bill No. 226, because it creates a bad precedent in placing the stamp of legislative approval on a certain special method or system of treating sickness. That contemplated in the proposed legislation is referred to as "chiropractic".

The history of the Boston Health Department for nearly one hundred and fifty years and my personal experience as its responsible head for nearly twenty years has convinced me that it would be contrary to a good public policy to start to recognize by special legislation any particular theory or method whatever in the treatment of disease.

In opposing this bill I leave out of consideration entirely such matters as the soundness of the theory on which the chiropractic or any other system may be based or whether its alleged benefits are due to reflex nervous stimulation, or to psychic influences, or are purely imaginary.

In my professional experience I have seen heat rejected as an agent in the treatment of certain conditions because it was discovered that it could not act as it was supposed to act and its apparent beneficial effects were therefore pronounced imaginary. In the light of further knowledge I have seen heat taken up again and used with unquestionable benefit in ways in which we formerly never thought of using it.

About three years ago a group of investigators

believed that they had evolved a constitutional treatment which would cure cancer. There were good scientific grounds for believing that these investigators might have succeeded. After a while those interested in this form of treatment appeared before the legislatures of New York and of other states as petitioners for special legislation intended to promote the availability of the treatment to cancer sufferers. As time has gone on we have learned that this method of treatment is not only useless, but probably harmful, besides resulting in the neglect of other methods which have proved to be successful in the eradication of early local growths.

For three thousand years at least, men have been trying out and discarding methods of treating sickness and probably the process will keep up for three thousand years to come. None of the methods which have stood the test of experience and have proved their value are today being used in the same manner as when first tried out. It is thus that progress in saving human life has been made.

To take for illustration certain of the diseases which directly concern me as Health Commissioner of Boston, because both law and ordinance impose upon me the task of reducing their mortality.

As recently as 1885, people were dying of tuberculosis in Boston at the rate of more than 400 per hundred thousand of population. If that rate still prevailed in Boston we would now be having 3200 deaths a year from tuberculosis. We are actually having less than 700.

About fifty years ago when Boston had less than half of its present population there were from 600 to 800 deaths from diphtheria a year. Nearly as many children also were dying from scarlet fever. Deaths from these diseases are now running with an annual total of less than fifty each. Success in reducing mortality from these diseases depends largely on the means taken to secure their earlier recognition.

The reduction of mortality from cancer has become an official responsibility of public health officials in this State. Here our only hope at present lies in early recognition. Our present methods of the treatment of cancer leave much to be desired but early superficial and accessible cancer growths which once meant a death sentence are now being cured every day. As with tuberculosis the practical benefit of present state appropriations for the control of cancer depends likewise upon earlier recognition.

A health officer is always on the watch for a smallpox outbreak, not because of the mortality which is likely to occur today, but because of the popular dread of a frightful disease and its disastrous effects on local business. Smallpox epidemics now always develop from failure to recognize cases of the disease in its early stages.

Not all the diseases with which public health officials are concerned are tending to decrease. Mortality from appendicitis, for example, is showing an alarming increase in spite of the availability of better facilities for its diagnosis and treatment. When appendicitis is operated within 24 hours of the appearance of recognizable symptoms, deaths are very rare.

Physicians are required by law to report cases of tuberculosis to local boards of health. Forty per cent. of our fatal cases of tuberculosis are not reported to us within one month of death.

The average length of time that cancer patients have had recognizable signs of cancer before they appear at our cancer clinics is twelve months Conditions which might have been cured ten months before are hopeless when seen and recognized at the dispensary.

Any public health official knows that betterment in public health and the reduction of needless disability and deaths call for an earlier recognition of the true significance of symptoms of serious disease.

Ability to recognize the signs of dangerous conditions of the body does not come from reading books alone. It calls for a kind of knowledge which comes from a personal study of persons suffering from disease only. The physician who fails to recognize a case of smallpox has never seen a case in all its stages. The welfare of the sick demands even more than clinical familiarity with disease. It calls also for ability and willingness to utilize the mechanical and laboratory aids to diagnosis which modern science has produced. A person who presumes to treat the sick is not doing justice to his patients if he ignores the x-ray when symptoms are referable to the chest or fails to do a "blood count" when symptoms may possibly indicate an acute infection.

Public interest demands more, not less, in the way of personal training and experience before being allowed to treat the sick. The standard which the Commonwealth now maintains to protect the interests of the sick merely assures the practitioner's possession of elementary knowledge which cannot be safely ignored by anyone who assumes to treat the sick. It places no restriction on the methods which may be tried by those who meet this educational test. The present standard of qualifications to treat disease is not too high. The sick are now taking chances enough with those who are able to meet this standard without legislating them into the hands of those who cannot do so.

To recognize a therapeutic hypothesis which has not stood the test of time, as a reason for exempting its partisans from the professional qualifications which all others who may treat the sick are required to possess is not for the public good. This fact should be apparent but the legislative recognition of "chiropractic" may also have results which cannot be foreseen. History warns us that in a few years the chiropractic scheme may survive as a name only. History also tells us that the creation of a privileged class of medical practitioners will pave the way to a return to former conditions when the misery of the sick gave an opportunity to all.

Respectfully,

FRANCIS X. MAHONEY,
Health Commissioner.

THE BOOKPLATE OF DR. HENRY BARTON JACOBS

Editor, *New England Journal of Medicine,*

A number of your readers have expressed an interest in the unique bookplate of Dr. Henry Barton Jacobs published on page 244, February 4, 1932. Dr. Jacobs has been good enough to send me an explanation of the various figures, as follows:

"Beginning at the left-hand upper corner, the *Mayflower*, on which I had seven ancestors sailing; the centre, at the top, is a sketch of my birthplace in Assinippi, Cape Cod, the home of several generations of the Jacobs family and originally built in 1726; the shield at the right-hand corner is the Jacobs coat-of-arms; below the *Mayflower* is Phillips Exeter Academy; to the right is that of Harvard College; under Exeter is Johns Hopkins University; under Harvard, the coat-of-arms of Baltimore Cathedral; in the left lower corner is the Aesculapian staff and serpent representing Medicine; the little sketch in the middle at the bottom is my office in Baltimore; and at the lower right-hand corner is the double red cross of Tuberculosis. The names represent the authors of my special collections of prints and medals."

I am sure this note from Dr. Jacobs will be of interest to the readers of your *Journal.*

Very truly yours,

HENRY R. VIETS, M.D.

February 29, 1932.

A VICTIM OF A SUAVE SALESMAN

20 Payson Avenue

Rockland, Mass., March 3, 1932.

Editor, *New England Journal of Medicine,*

At the suggestion of Dr. George Moore, Secretary of the Plymouth District of the Massachusetts Medical Society, I am writing you concerning the operations of representatives of the Standard Encyclopedia Corporation, who are preying upon doctors just starting the practice of medicine.

I wrote the editor of the *Journal of the A. M. A.* immediately after I found out how I had been "taken in" by the publishing company and the letter was published in the *Journal* of February 13, 1932, Vol. 98, No. 7, page 571. The letter covers the details of the publisher's methods, so that if you will read that, I need not take your time repeating. By a coincidence the *Journal* was publishing an article showing the result of its investigation of this same corporation. This appeared in the February 6 *Journal*, page 498, and is a clear exposure of the shadowy dealings of the concern and coincides with my experience.

The letters I have received from a questionable "John E. Roche, Atty." appear to be form letters—multigraphed—with my name typewritten in—and are in series: J.E.R. 1; J.E.R. 2; J.E.R. 3; etc. One gets the impression that a company requiring letters of this type as a routine is not doing an upright business.

I have answered a few of the letters but have since been advised to disregard them except to save them in case any legal moves are made. Very few cases have ever been presented for trial I am told and I think the company lost out in each.

To show the scope of this concern's activity I want you to know that I have received many letters from California, Oregon, the Carolinas, Michigan, Ohio, and throughout the East since my letter was published, all thanking me for timely warning or relating similar experiences and giving me advice from their experiences. They all have sought to encourage me asking Medical Societies to expose the workings of the Standard Encyclopedia Corporation of Chicago, Illinois. In the same fraternal spirit I overcome my repugnance to exposing my gullibility and ask you for the common good to use such material as you think suitable in anything I have written.

Yours very truly,

HERBERT J. HULSE, M.D.

RECENT DEATHS

DURELL — DR. THOMAS MOULTON DURELL died March 4, 1932, at his home 131 Highland Avenue, Somerville. He was born in Calais, Maine, in 1858, the son of Rev. and Mrs. George F. Durell, the father later becoming the rector of the St. Thomas Episcopal Church in Somerville.

He graduated in Medicine from the Medical School of Harvard University in 1879 and began practice in Somerville soon after where he lived and served the people of that section up to within a few months of his death. He was appointed Medical Examiner for his district early in his medical career and achieved distinction for the quality of his medico-legal work. His service for the State was continuous except for an interim service of another who was a friend of the then governor. He was reappointed by Ex-Governor Channing Cox.

Dr. Durell was active and influential in civic and fraternal organizations in Somerville and was president emeritus of the Somerville Public Library Trustees at the time of his death. He had served on the Somerville School Committee for several years, was a Rotarian and a Mason. He is survived by his wife Alma Louise (Brintnall) and two sons Ralph and Thomas M. both of New York City.

DAY—DR. JAMES ARNOLD DAY. The death of Dr. James Arnold Day of Waltham has recently been recorded. Dr. Day was born in Bangor, Me., in 1856 and received his medical education at the Dartmouth

Medical School, from which he graduated with the degree of M.D. in 1887. He had been in Waltham for more than twenty years and before settling there had practiced in many New England towns.

NOTICES

HARVARD GRADUATE SCHOOL OF MEDICINE

WORCESTER EXTENSION COURSE

Worcester, Mass., February 25, 1932.

The success of our past extension courses left us with a small surplus. Accordingly we have arranged another course on very timely subjects for the doctors who want to enlarge their fields of usefulness and do better work for their patients, and we are offering it practically without cost to all who have subscribed to previous courses.

PROGRAM

How the Maternal Death Rate May Be Lowered—Robert L. DeNormandie—March 17, 8:15 P. M.

Sero-Therapy—Technics — How the Practitioner Can Serve Public Health and Retain His Practice—Elliott S. A. Robinson—March 31, 8:15 P. M.

Cancer Clinic and Lecture—Jos. Colt Bloodgood—April 7, time to be announced.

Arthritis—Robert Osgood—April 21, 8:15 P. M.

Endocrines—Joe V. Meigs—April 28, 8:15 P. M.

If you wish to enroll will you please reply at once on the enclosed card or telephone to the undersigned. We are asking that former subscribers pay one dollar each to cover expense of advertising, mailing, etc. The lecturers' fees and expenses will come out of the surplus fund.

New subscribers are asked to pay the regular fee of ten dollars.

Place — Thayer Hall, Worcester City Hospital, Queen Street entrance.

Cordially yours,
ERNEST L. HUNT.

AMERICAN ASSOCIATION FOR THE STUDY OF GOITER

The American Association for the Study of Goiter again offers an award of Three Hundred Dollars ($300.00) for the best essay based upon original research work on any phase of goiter presented at their Annual Meeting in Hamilton, Ontario, Canada, June 14, 15 and 16, 1932. It is hoped that this offer will stimulate valuable research work, especially in regard to the basic cause of goiter.

Competing manuscripts must be in English and in the hands of the Corresponding Secretary, J. R. Yung, M.D., Rose Dispensary Building, Terre Haute, Ind., not later than March 15, 1932. Manuscripts arriving after this date will be held for the next year or returned at the author's request.

The first award of the 1931 Kansas City, Mo., meeting was given to Dr. Bruce Webster, Presbyterian Hospital, New York City, "Studies in the Etiology and Nature of Simple Goiter as Produced Experimentally in Rabbits."

Honorable mentions were awarded as follows: Drs. W. H. Cole and N. A. Womack, St. Louis, "Experimental Production of Pathologic Lesions of the Thyroid Gland by Infective Means." Drs. J. Lerman and J. H. Means, Boston, "The Gastric Secretion in Exophthalmic Goiter and Myxoedema." Dr. C. O. Rice, Minneapolis, "Life Cycle of the Thyroid Gland in Minnesota."

MEDICAL CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

At 3:30 P.M., on Thursday, March 17, in the Amphitheatre of the Peter Bent Brigham Hospital, a medical clinic will be given by Dr. Henry A. Christian, to which physicians are cordially invited. The clinics will be held regularly on Thursday afternoons.

A LECTURE ON CLINICAL AND ANATOMIC FINDINGS IN FULMINATING RHEUMATISM

Dr. Alvin F. Coburn, Presbyterian Hospital, N. Y., will give a lecture on "Clinical and Anatomic Findings in Fulminating Rheumatism" at the Boston Medical Library, at 8 P. M., on March 18. This lecture has been arranged by the Department of Preventive Medicine at Tufts College Medical School. Physicians and medical students are cordially invited.

RADIO HEALTH MESSAGES

MARCH, 1932

Sponsored by the Public Education Committee of the Massachusetts Medical Society and the Massachusetts Department of Public Health.

Courtesy WBZA. Tuesdays at 5:00 P. M.

March

15 Electrical Hazards in the Home
22 Can High Blood Pressure Be Avoided?
29 Rose Cold and Hay Fever

STATE HOUSE BROADCAST

Sponsored by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays at 12:30 P. M.

Health matters of public interest discussed by the Division Directors of the Department.

RADIO HEALTH FORUM

Queries from the public are answered under the sponsorship of the Department of Public Health.

Courtesy WEEI. Fridays at 4:50 P. M.

Questions on Health and Prevention of Disease may be sent to Radio Health Forum, State Department of Public Health, State House, Boston.

REPORTS AND NOTICES MEETINGS

HARVARD MEDICAL SOCIETY

The regular meeting of the Harvard Medical Society was held in the amphitheatre of the Peter Bent Brigham Hospital on February 23. Dr. David Cheever presided.

The surgical case was presented by Dr. Thompson. An iron-worker, 49 years old, was first admitted to the hospital 7 years ago. Then the chief complaint was epigastric pain relieved by food, milk, or soda. His red blood count was 2.7. X-ray showed a gastric ulcer. He was discharged relieved with a normal red count.

His attacks of pain recurred, with intervals of freedom. They have been more severe in the past year. He has had many headaches during the three months preceding his second admission a few weeks ago. Physical examination on entry was negative. Gastric analysis showed a very high acidity. The pain was not controlled with double doses of Sippy powders and repeated aspirations. He became irrational, disoriented, and at intervals required restraint. There was no muscular spasm. The carbon dioxide combining power of the blood was found to be 86 volumes per cent. The Sippy powders were stopped because of the alkalosis. He was put on mucin treatment. Much abdominal distress followed, with vomiting. He then had another gastric hemorrhage with coffee-ground vomitus and grossly bloody stools. Because of the intractability of the case, he was transferred to the surgical service for operation. He has just had one preoperative transfusion.

Dr. Davenport presented the medical case. A 13-year-old schoolgirl was well until a year ago. At that time, following an upper respiratory infection, she developed pallor of the face, puffiness of the eyelids, and swelling of the ankles. She was studied in a Maine hospital where a low serum protein was found. She was put on a high protein diet with little improvement. She first entered the Brigham Hospital seven months ago. The urine at that time showed large traces of albumin, with very few cellular elements. The blood NPN was normal, the cholesterol was increased, blood pressure normal, and serum protein reduced. She was given 150 grams of protein daily, and discharged unimproved with no changes in the blood chemistry.

She was fairly well for two months until, following an acute upper respiratory infection, she developed massive edema of the legs and abdomen. She responded well to salyrgan.

She was readmitted two weeks ago with an increase in edema following an acute bronchitis. On admission she showed pallor, puffiness, slight edema of the extremities, and striae upon the abdomen and thighs. The blood pressure was normal. The red count was 4.9, hemoglobin 60, white count 21,000 (this has dropped to normal since). The urine showed a slight to a large trace of albumin, with very few cells. Two phenolsulphonthalein tests were normal. The NPN was normal, cholesterol 520 mg. per cent., serum protein 5.7 grams per cent., with a reversed albumin-globulin ratio. The basal metabolic rate was -25. She was placed on a high protein diet which resulted in raising the serum protein to 5.9.

Dr. Christian believes this is a form of glomerulonephritis.

Dr. Cushing summarized briefly von Goethe's contributions to comparative anatomy. Dr. Cushing has in his possession two of Goethe's original publications on scientific matters. His first paper was an "Essay on the Inter-Maxillary Bone of Animals and Man" (1786). He showed therein that man, as well as the ape, has such a bone. A second article was titled "On the Metamorphosis of Plants." He attempted to reduce to a natural law the formation of buds and branches of plants.

He later produced a book on comparative anatomy, a treatise on color, and in 1801, his last scientific work, "On the Spiral Tendencies of Vegetation." It is difficult to evaluate his contributions to science. It is at least certain he introduced the word "morphology".

Dr. Reginald Fitz in his essay "Iron Men" sketched the development of iron therapy in the treatment of anemias. Blaud was the first of the group. In 1835 he wrote on chlorosis and a method of treatment with iron. He found that an excellent response was obtained with iron subcarbonate, which formed the active agent in his pill.

Von Niemeyer made an important contribution since he used iron pills in the treatment of chlorosis, and recommended them in his excellent and widely disseminated textbook. When Dr. Osler wrote the text which replaced that of Niemeyer he recommended Blaud's pills, perhaps because of the influence of his teacher, Dr. Howard, who maintained it was the only effective compound for chlorosis. Drs. Minot and Murphy are the iron men of the present.

In the discussion of the papers, Dr. Minot stated that Sydenham employed iron filings dissolved in vinegar in the treatment of chlorosis. It is certain that this use of iron originated before his treatise in 1664, but the true discoverer is not known.

THE NEISSERIAN MEDICAL SOCIETY OF MASSACHUSETTS

The Neisserian Medical Society of Massachusetts held its fourth regular meeting at Thayer Hall, the Worcester City Hospital, Wednesday evening, February 17, 1932, with Dr. J. Dellinger Barney, President, in the chair. The meeting was addressed by Dr. George H. Bigelow, Massachusetts Commissioner of Public Health, on the subject "Why Is the Control of Gonorrhea So Inadequate?"

Dr. Bigelow enumerated the four major weaknesses of the present program as (1) medical; (2) biologic and economic; (3) public ignorance; and (4) the impossibility of applying the usual administrative control methods.

Inadequacies in the medical management of gonorrhea are serious and consist essentially of (1) inadequate and unreliable diagnostic facilities—the gram stain, cultural and biologic procedures and, most of all, clinical methods being extremely inexact and unsatisfactory; (2) lack of specific therapy which will materially reduce the long and indeterminate period of communicability, plus the fact that infection provides no eventual immunity; and (3) generations of lack of interest on the part of the medical profession because of the unfortunate mixing of medicine and morals.

The conflict between biology and economics is a serious obstacle to control. Sex competence begins with puberty. Marriage, on the other hand, is economically impossible until the middle twenties. The fact that gonorrhea has its greatest prevalence in the ages between fifteen and twenty-five years is evidence of the supremacy of biology over economics and offers an argument for those who advocate teaching birth control as a way to permit earlier marriage. The entire lack of sex education and sex character building in our scheme of education is another deplorable inadequacy which leads to many sex disasters.

Public ignorance of the prevalance of gonorrhea and general belief that it is limited to prostitutes, ignorance as to the true nature of the infection, to the technic and importance of adequate treatment, and the use of prophylaxis, stand as the third major obstacle to control.

Finally, it is impossible to manage gonorrhea administratively as most other communicable diseases are managed. It is contrary to public policy to require official identification of the coöperating patient; compulsion of any kind only serves to drive the patient to the cover of the drug store, the charlatan, or to no treatment at all; it is economically impossible to isolate the infected for the months during which the disease may be communicable; and the already busy doctor, being not only the ultimate but the only health officer in relation to the patient, finds that the whole burden of searching out contacts and sources of infection falls unfairly upon him.

Dr. Bigelow then outlined the ideal program for the control of gonorrhea as consisting of (1) exact and readily available diagnostic procedures; (2) a specific therapeutic agent which will quickly destroy infectivity of the diseased person; (3) greater interest on the part of physicians in the proper management of this disease; (4) support of the social hygiene program and its complete correlation with that of probation, parole and mental hygiene—that is, with all the agencies concerned in the solution of behavior problems; (5) improved public education through such channels as the newspapers, radio, popular magazines, etc., now largely closed to this subject, and more writers of sound educational material; (6) improved medical management in the way of more instruction in the medical schools, the continued postgraduate education of physicians, the better instruction of the patient by the physician, greater availability of expert medical management especially outside the larger cities where neither specialists nor clinics are available; and (7) some form of nursing follow-up service such as is now available to private as well as to clinic patients in tuberculosis.

It is not necessary however, in Dr. Bigelow's opinion, to sit idly by until the ideal program can be developed. Much can be done in the meantime both through such bodies as the Neisserian Medical Society and the official health agency. The medical Society can dignify and clarify the management of gonorrhea, thus attracting to this field more competent and interested physicians, sponsor and insist upon more adequate medical instruction, sponsor the postgraduate education of physicians in this specialty, emphasize that the communicability of the disease multiplies the responsibility of the physician in its management, sponsor research toward improved diagnostic methods and specific therapy, and join hands with the official and other private agencies in their efforts to evolve a sound and sane plan of public education.

The official health agency must consider how far it may go in spending public funds toward keeping the profession informed upon postgraduate medical matters and how much this is up to the profession itself; how and in what direction it may improve its laboratory services; how treatment may be made available to the indigent in rural areas; whether it should provide nursing follow-up service for private physicians' cases; how far it should attempt research or encourage the participation of foundations in this direction; and how to build up sane public appreciation of the size and serious nature of this problem of controlling gonorrhea.

Finally, Dr. Bigelow asked for discussion of the question "Should the official health agency provide prophylactic packages for general public distribution?"

Discussion

Discussion was participated in by Drs. J. Dellinger Barney, Boston; Walter D. Bieberbach, Worcester; John J. Carroll, Holyoke; Samuel Mintz, Boston; John D. Spaulding, Boston; E. L. Hunt, Worcester; N. A. Nelson, Boston; E. L. Merritt, Fall River; Oscar F. Cox, Jr., Boston; and O. D. Phelps, Worcester. The discussion brought out the opinions that (1) while the teaching of prophylaxis to the public might be highly desirable, its use in civil population, without the type of supervision available in the army, would be unsatisfactory and it would be a dangerous gesture against public opinion for the official agency to try it; (2) that there is a great lack of knowledge of the fundamentals in gonorrhea, such

as its pathology and bacteriology; (3) that the time to do the real "follow-up work" with the patient is at his first visit, in the way of careful instruction and information; (4) that official laboratory services for smear examination tend to make the physician, who should be studying the smears with his own microscope, far less proficient, and the negative laboratory reports are too often interpreted as absolute evidence of freedom from infection; (5) that no physician can manage gonorrhea without frequent recourse to the microscope; (6) that in a series of 1,000 physicians in this State only 14 per cent. own microscopes and only half of these use them, although between 50 per cent. and 60 per cent. treat gonorrhea; (7) that there is a ridiculous tendency on the part of employers to discharge those who have gonorrhea; and (8) that the reason for many failures in treatment is that treatment is an art and not yet a science and requires long experience.

The Society went on record as opposed to House Bill 226 "Initiative Petition for the Regulation and Recognition of Chiropractic" and instructed the Secretary to so inform the Committee on State and National Legislation.

Dr. Barney expressed the appreciation of the Society to Dr. MacIver, Superintendent of the Worcester City Hospital, for his courtesy in permitting the use of Thayer Hall for the meeting.

OSCAR F. COX, JR., M.D., *Secretary.*

THE GREATER BOSTON MEDICAL SOCIETY

The regular meeting of the Greater Boston Medical Society was held in the auditorium of the Beth Israel Hospital on February third. Dr. William Dameshek presided.

The address of the evening was given by Dr. R. G. Hoskins, formerly Professor of Physiology in the Ohio State Medical School, and at present Director of Neuro-Endocrine Research in Harvard University, Director of Research, Worcester State Hospital, and Editor of "Endocrinology." He spoke upon "Recent Advances in Endocrinology."

The speaker considered in turn, the pineal gland, the pituitary, the thyroid, and the adrenal cortex.

No recent progress has been made with respect to the pineal gland. Patients with tumors of this gland develop at an early age, giving rise to the syndrome macrogenitosomia praecox. Whether this is due to an over- or under-activity of the gland is not clear. The tumors appear to be destructive. However, experimentally, pineal extracts cause changes similar to those produced by the tumors. Some believe the effect of the tumor arises from pressure on nervous structures or on the pituitary.

McCord has observed that addition of pineal substance to a medium in which tadpoles are swimming caused chromatophore contraction. This indicates that an active principle is present in the gland. Multiple transplants into young animals have not been made; such work would be valuable.

Nothing of importance has been discovered about the posterior lobe of the pituitary since pituitrin was shown to contain two active principles. Recently, at least two hormones have been identified from extracts of the anterior pituitary, while some authorities believe that there are several.

The growth hormone was first isolated by Evans. He obtained an extract which caused marked overgrowth in growing animals. During the past few years the method of production of its effects has been studied. It appears that it has the same effect on protein metabolism that insulin has on carbohydrates. Thus after its administration, nitrogen is stored, and the blood nitrogen is reduced, while the basal metabolic rate is reduced. This may open the door to new studies of protein metabolism.

After removal of the anterior pituitary, the activity of the thyroid declines. It remains hypoplastic in the young, and becomes sclerotic in the old. It would seem therefore that the thyroid function is dependent on the pituitary. This may explain the reduced metabolic rate in some cases of pituitary deficiency.

It has also been found that in marked cases of pituitary insufficiency that the adrenals become hypofunctional. This change is not often observed clinically, probably because sufficient active tissue remains. Finally, the gonads are markedly depressed in pituitary insufficiency. This is especially marked in the female.

The chain of events produced by experimental hypophysectomy has been studied in tadpoles by Atwell. After this operation the tadpole will not undergo metamorphosis. But, given thyroid, it develops into a frog. Therefore, part of the so-called pituitary insufficiency was actually due to thyroid deficiency. He also found that adrenal cortical extract will bring about prompt development of the gonads in these tadpoles.

The sex hormone of the anterior pituitary was first studied by Smith. He made multiple implants of the gland into rats and found precocious puberty. Further study has shown that two hormones are involved in this action. Of these, "Prolan A" stimulates follicular development, while "Prolan B" stimulates the corpus luteum.

It seems logical that to stimulate sex development either the sex hormone of the anterior pituitary or adrenal cortex should be given. Moore states that gonad extracts should not be given since they depress the corresponding organ.

Hartman wrote two years ago on the relation of the anterior pituitary to menstruation. He confirmed the finding of others that menstrual bleeding can be caused by large doses of "theelin" in the presence or absence of ovaries. This action is obliterated by removal of the pituitary. Hence in primates (but not in rodents) theelin acts on sex structures by way of the hypophysis. On the other hand, menses can be brought on by extracts of the anterior pituitary itself. For this reason Hartman be-

lieves that there are five anterior pituitary hormones —one directly affects the uterus causing bleeding, one stimulates follicular development, one the corpus luteum, one the thyroid, and one growth.

Growth of hair should be expected after the injection of anterior pituitary because of the specific effect of the hormone.

Clinical knowledge of the thyroid has increased in the past few years, although little has been added to the understanding of the chemical and physiologic properties of the gland. Several syndromes of thyroid dysfunction have been described recently. In one of these described by McLester the patient is exhausted, complains of numbness, vague pains in the hands or legs, constipation, mild digestive disturbances, muscular flabbiness, and often of loss of weight. He has a slow pulse, low blood pressure, often secondary anemia and albuminuria. The important finding is a basal metabolic rate of —15 to —30. The whole picture is corrected after thyroid medication. Some patients will be thin, alert, and irritable, without signs of hyperthyroidism, but will be found to have a low metabolic rate, and will respond well to thyroxin.

Dr. Hoskins has been much interested in the relation of the thyroid to mental conditions. He found that 10% of schizophrenics have thyroid deficiency. Ninety per cent. of this group will respond well to specific medication. If the entire group of schizophrenics are given thyroxin, there will apparently be some improvement in about thirty per cent.

The most important advance in endocrinology in the past two years has concerned the adrenal cortex. In 1927 Hartman and Stewart simultaneously reported the discovery of a potent extract. Hartman appeared to have the better preparation and obtained it in concentrated form in 1930. Swingle and Pfeiffner meanwhile began their experiments. They were the first to report definite survival of animals after adrenalectomy, followed by "cortin" administration.

Cortin increases endurance, lessens susceptibility to infections, and apparently is specific in Addison's disease. The endurance of the normal subject as measured by the ergometer is increaed 50 to 125% by cortin, while even more remarkable results have been reported in muscular dystrophy. It is possible that it may be of use in postinfectious disorders. It has been reported that it is of value in the intestinal intoxications of children, in arthritis deformans, in tuberculosis, and in Paget's disease. Most of these results are still unconfirmed.

The paper was discussed by Dr. Joseph C. Aub. He stated that it seems that not all of the endocrine glands are of unique importance in the body. For in many cases the function of one gland can be taken over, to some extent, by others in the body. Many of them show especially close relationships. Thus the hyperpituitary and the hyperthyroid have the same sugar curves. The thyroid and parathyroids both influence calcium metabolism. The adenomas of one gland are often associated with adenomas of others.

Patients sometimes have a basal metabolic rate of —15 to —30 without presenting signs of myxedema. Dr. Aub said that in case the diagnosis is in doubt, the administration of thyroid may be helpful. If the patient does not need thyroid, the metabolic rate will be raised only slightly and with difficulty; if he needs thyroid, the metabolic rate will be raised. Successive doses of thyroid given to the myxedematous patient raise the metabolism less each time.

BOSTON CITY HOSPITAL

The next Staff Clinical Meeting will be held Thursday, March 24, 1932, at 8:15 P.M., in the Cheever Amphitheatre.

Dr. James J. Hepburn.
Cholelithiasis.

Dr. George W. Papen.
1. Duodenal Fistulae.
2. Secondary Vesical Calculus.

Dr. Horace Binney.
1. Cancer of Gall Bladder.
2. Pulmonary Embolectomy.

Dr. Newton C. Browder.
Points in Connection with Treatment of Colles Fracture.

Dr. Lewis R. Dretler.
A Case of Traumatic Pressure Pneumothorax.

Doctors and medical students cordially invited.

COMMITTEE ON HOSPITAL CLINICS.

THE NEW ENGLAND ROENTGEN RAY SOCIETY

The March meeting will be held Friday night, March 18, 1932, at the Boston Art Club, Boston, Mass.

SCIENTIFIC SESSION

Symposium as follows:

Table No. 1—"Diseases of the Chest," P. F. Butler, M.D.

Table No. 2—"X-ray and Radium Treatment," G. W. Holmes, M.D., assisted by Richard Dresser, M.D.

Table No. 3—"Diseases and Tumors Involving Cranial Bones," M. C. Sosman, M.D., assisted by Gilbert Horrax, M.D.

Table No. 4—"Spines," R. D. Leonard, M.D., assisted by John Adams, M.D.

Table No. 5—"Gastro-Intestinal Tract," George Levene, M.D.

T. R. HEALY, M.D., *Secretary.*
370 Marlborough Street, Boston, Mass.

NEW ENGLAND PHYSICAL THERAPY SOCIETY

There will be a meeting of the Staff of the Quincy City Hospital jointly with members and guests of the Norfolk South District Medical Society and the New England Physical Therapy Society at the

Quincy City Hospital at 8:30 P. M., March 17, 1932.

The evening will be devoted to an inspection of the Physical Therapy Department, a discussion and demonstration of cases, and the following program:

1. Physical Therapy: Its Place in Hospitals, William D. McFee, M.D., 520 Commonwealth Avenue, Boston.
2. Pemphigus: The Disease and Its Treatment by Colonic Irrigation, Francis P. McCarthy, M.D., 371 Commonwealth Avenue, Boston.
3. The Field of Physical Therapy in Medicine and Surgery, C. L. Payzant, M.D., 124 Commonwealth Avenue, Boston.

ARTHUR H. RING, M.D., *Secretary.*

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Van Dyke Street entrance), Tuesday evening, March 22, at 8:15 o'clock.

PROGRAM

Presentation of Cases.

Calcification of Arteries and the Associated Osteitis Fibrosa, by Dr. W. G. MacCallum, Professor of Pathology, Johns Hopkins Medical School.

JOHN HOMANS, *Secretary.*

NEW ENGLAND HOSPITAL FOR WOMEN AND CHILDREN

The regular clinical conference of the New England Hospital for Women and Children will be held at the hospital, Dimock street, Roxbury, on Thursday, March 17, at 8 P.M. The following papers will be read and discussed: Children's Dentistry, by Dr. Hopkins, and Nutritional Dentistry, by Dr. Mulrey.

ALICE H. BIGELOW, M.D., *Secretary.*

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

The next meeting of the Middlesex East District Medical Society will be held at Rotary Hall, Reading, on Wednesday, March 16. Luncheon at 1:00 P.M.

Dr. Torr Wagner Harmer will address the gathering on "Traumatic Injuries of the Hand."

A. R. CUNNINGHAM, *Secretary.*

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

March 10—Massachusetts General Hospital Clinical Staff meeting. See page 489, issue of March 3.

March 11—William Harvey Society. See page 489, issue of March 3.

March 15—South End Medical Club. See page 489, issue of March 3.

March 17—Medical Clinic at the Peter Bent Brigham Hospital. See page 537.

March 17—New England Hospital for Women and Children. See notice above.

March 17—New England Physical Therapy Society. See page 541.

March 18—The New England Roentgen Ray Society. See page 541.

March 17 - April 28—Harvard Graduate School of Medicine. Worcester Extension Course. See page 537.

March 18—A Lecture on Clinical and Anatomic Findings in Fulminating Rheumatism. See page 537.

March 22—Harvard Medical Society. See notice above.

March 24—Boston City Hospital. See page 541.

March 26—Examination Conducted by the American Board of Obstetrics and Gynecology (written)—May 10 (general, oral and clinical). See page 252, issue of February 4.

March - April, Autumn — International Postgraduate Courses in Berlin. See page 1169, issue of December 10.

April 4-8—The American College of Physicians. See notice on page 1232, issue of June 4.

April 6 - June 1—New England Heart Association. See page 891, issue of October 29.

April 7 and 8—Clinics for the Demonstration of Cured Cancer Cases. See page 486, issue of March 3.

May 9-13—American Medical Association, New Orleans, La.

June 8, 9, 10—Massachusetts Medical Society, Hotel Statler, Boston.

June 21-24—Catholic Hospital Association. See page 369, issue of February 18.

September 19-22 — International Congress of Biliary Lithiasis. See notice on page 427, issue of February 25.

October 24-27—American Public Health Association. See notice on page 1321, issue of December 31.

October 24-28—Inter-state Postgraduate Medical Association of North America. See page 39, issue of January 7.

DISTRICT MEDICAL SOCIETIES

Essex North District Medical Society

May 4—Annual meeting at Lawrence.

Essex South District Medical Society

April 6, Wednesday—Essex Sanatorium, Middleton. Clinic 5 P. M. Dinner 7 P. M. Speaker, Dr. Arthur P. Wakefield, State Department of Health. Subject: 10-Year Tuberculosis Program in the Public Schools.

May 5, Thursday—Censors' Meeting, Salem Hospital, 3:30 P. M.

May 10, Tuesday—Annual Meeting. The Tavern, Gloucester. Speaker and subject to be announced later. Ladies invited.

Franklin District Medical Society

May 10—Meeting at the Weldon, Greenfield, at 11 A. M.

CHARLES MOLINE, Secretary.

Middlesex East District Medical Society

At a meeting of the executive committee the following schedule for the Middlesex East District Medical Society was arranged:

March 16—See notice elsewhere on this page.

May 11 (Unless otherwise announced)—At Woburn.

Norfolk District Medical Society

March 29—Place to be announced. Boston Public Health Meeting. Speakers, Honorable James M. Curley, Dr. Francis X. Mahoney, Dr. Charles Wilinsky, Dr. W. H. Griffin.

May—Annual Meeting, date and place to be announced.

May 5—Censors' Meeting for examination of candidates. Roxbury Masonic Temple, 171 Warren Street, Roxbury, 4 P. M. Fee $10.00 payable at time of examination. All candidates will have applications in the hands of the secretary one week prior to this date. All candidates from Medical Schools not on approved list of Society must have application complete two weeks prior to date of examination.

F. S. CRUICKSHANK, Secretary.

Norfolk South District Medical Society

April 7—To be announced later.

May 5—Annual Meeting.

The time of all meetings is 12 o'clock noon, at the Norfolk County Hospital, South Braintree. Censors will meet on May 5 at 11:15 A. M. at the Norfolk County Hospital.

N. R. PILLSBURY, Secretary.

Suffolk District Medical Society

March 30—Clinical Program, New England Deaconess Hospital.

April 27—The Annual Meeting, Boston Medical Library. Election of Officers.

The Medical Profession is cordially invited to attend all of these meetings.

REGINALD FITZ, M.D., Vice President.
LELAND S. McKITTRICK, M.D., Secretary.
HILBERT F. DAY, M.D., Boston Medical Library.

Worcester District Medical Society

Wednesday evening, April 13—Grafton State Hospital, North Grafton, Mass. 6:30—Dinner, complimentary by Grafton State Hospital. 7:45—Program to be announced later.

Wednesday afternoon and evening, May 11—Annual Meeting. Program to be announced later.

ERWIN C. MILLER, Secretary.

BOOK REVIEWS

Précis du Diabète. By H. Chabanier and C. Lobo-Onell, 1931, Masson et Cie., Paris, 280 pp. Price 26 francs.

This volume contains a summary of modern ideas concerning the nature of diabetes, its physiology, clinical forms and treatment. The authors consider that hyperglycemia is essential in the diagnosis of true diabetes and that true diabetes is fundamentally due to hypoinsulinism. It is of interest that the unitary character of diabetes is now so generally recognized.

The discussion of glycosuria, the renal threshold and renal glycosuria is well presented.

The theories of ketogenesis largely as developed in the United States together with the physiologic regulation of the alkalinity of the blood are well presented.

They recognize diabetes as occurring in three different clinical forms—

A. Florid or classical type,

B. Consumptive,

C. The type characterized by pure hyperglycemia with or without glycosuria.

For diagnosis they advise placing the patient for three days on a diet containing carbohydrate 100 grams, protein 1 gram per kilogram body weight, and fat 80 grams.

If then the fasting blood sugar is below 0.10 per cent. the evidence is considered strongly against the diagnosis of diabetes.

Insulin is recommended in all the complications of diabetes as well as especially in the consumptive type.

Abscesses following insulin are always due to infection. Occasional crises occurring during insulin injection or immediately following it are compared to the nitritoid crises.

Good discussion of the dietary methods is given. Apparently diets that in this country would be regarded as moderately high in carbohydrate are used.

Especial attention is given to pregnancy. Before the use of insulin, hydramnios occurred in one-third of the cases and death of the infant occurred in 40 per cent. before or at term. However, with insulin at present the chances of a normal delivery are most favorable.

Medication with nickel cobalt, synthalin, manganese is discussed, but nothing is recommended as comparing with insulin and diet.

It should be a very useful volume for physicians especially to use with French-speaking patients.

Lehrbuch der Urologischen Diagnostik. By Dr. Leopold Casper and Dr. Edwin Picard. Published by Georg Thieme, Leipzig, 1930. 372 illustrations. 473 pages. Price M. 46.

In this book, Casper and Picard have gathered the essentials of urologic diagnosis. There are excellent chapters, well illustrated, on the embryology, the anatomy and the physiology of the urinary tract. The illustrations bring out with great clearness the important points in the blood supply and innervation of these organs. Other chapters deal with the history and physical examination of the patient, with the examination of the urine and with the various tests of renal function.

There is an excellent chapter on cystoscopy, with full description of the optical system of cystoscopes and the method of performing cystoscopy. Many reproductions of cystoscopic pictures are included in this chapter.

The latter half of the book is devoted to x-ray diagnosis. The illustrative x-rays are well chosen. The authors employ oxygen as a contrast medium, both within and without the kidneys and bladder, much more than is customary in this country. By this means they are able to outline very clearly the kidneys and to show irregularities in the bladder wall. Pyeloscopy they regard very highly as a means of determining the ability of the renal pelvis and ureter to function properly. An excellent chapter on intravenous pyelography concludes the book.

For those who read German readily, this book will prove both interesting and useful. In general, the views of Casper and Picard do not differ from those of American urologists, but there is just enough difference in their point of view to make their textbook on urologic diagnosis worth reading. For example, in speaking of the value of guinea-pig inoculation in the diagnosis of tuberculosis, the authors express the belief that tubercle bacilli will not pass through healthy kidneys; only in cases of severe phthisis, with nephritis, are the tubercle bacilli filtered out into the urine. Almost always, a positive guinea-pig test means tuberculosis of a kidney.

In discussing the physical signs of carcinoma of the prostate, the authors state that the prostate so affected is usually asymmetrical, and that metastases are palpable chiefly in the inguinal regions. With these observations on prostatic cancer the reviewer does not agree.

The book as a whole is stimulating; its Teutonic thoroughness and the clarity of its style make it a valuable addition to the literature of urology.

Allergy and Applied Immunology. A Handbook for Physician and Patient, on Asthma, Hay Fever, Urticaria, Eczema, Migraine and Kindred Manifestation of Allergy. By Warren T. Vaughan, M.D. C. V. Mosby Co., St. Louis, Mo., 1931. 352 Pages. Price $4.50.

Dr. Vaughan has described the methods for the diagnosis and treatment of the manifestations of allergy. Most of his chapters are written for the layman who will find a wealth of interesting information in them. On the other hand, this layman will be bored by the seventy-five pages devoted to the comparative study of pollens and their distribution and by some of the academic discussions of

food groups and kindred topics. The doctor will find much that will help him in the management of his allergic patients, but he will find many paragraphs which are simple and childish in their phrases and he will find that the more fundamental aspects are treated only briefly. Part VII on "Applied Immunology" covers only nineteen pages and yet it deals with all the common specific treatments from smallpox vaccine to antipneumococcus serum and from Asiatic cholera to snake bite and to common colds. The weakness of the book lies in the fact that it is addressed partly to the patient and partly to the doctor, being too scientific for the one and not scientific enough for the other.

Its strength, however, lies in the many practical suggestions which it offers to readers of all kinds. The bibliography is small but well selected. Unfortunately, the references in the text include only the serial numbers and do not give the author's names. This omission is annoying and invites errors but the fault is a minor one.

Handbook of Skin Diseases. By Frederick Gardiner, M.D. William Wood & Company, New York, 1931. 283 pages. Third Edition. Price $3.50.

This little book gives the salient points about most of the frequent skin diseases. In such a small volume many details, especially of treatment, are necessarily omitted, but for a book of its size it covers the subject in an excellent manner. There are forty-six photographs, and thirteen colored plates of wax models to depict the more common conditions. The wide experience of the author in occupational dermatoses is reflected in his comments on the various diseases with any industrial relationship. It is rather surprising that only eleven pages are devoted to syphilis.

Courts and Doctors. By Lloyd Paul Stryker. The Macmillan Company, New York, 1932. Pp. 236. Price $2.00.

The interest of most physicians in the above subject is generally purely academic—until they are sued for malpractice.

The author of this interesting and instructive little book was for many years general counsel for the New York State Medical Society, and had personal charge of the defense of its members against malpractice suits.

Mr. Stryker has gathered a fund of worthwhile information on the subject, that it would seem impossible to encompass in so small a space.

In thirty terse and pointed chapters he takes up all the important phases of the subject. The doctrines of *res ipsa loquitur* and of *res adjudicata*, are dealt with so simply and plainly that they are understood at a glance. The patient's duty to the physician, as well as that of the physician to the patient, is stressed in a forceful manner.

Among the most interesting of the chapters are those concerning the question of negligence, on account of foreign bodies left in the patient's economy after operations, and the question of liability for x-ray and radium burns. The loss of broken hypodermic needles in the tissues is an interesting sidelight.

It is quite impossible in a short review to take up all the interesting chapters in this book. At the present time, when so many physicians are victimized by unjust suits at law, every member of the profession should have knowledge of the subjects treated in this book and it should be in every doctor's library.

Ergot and Ergotism. By George Barger, F.R.S. London and Edinburgh, Gurney and Jackson. 1931. Price 15 shillings.

To physicians interested in the history of medicine, as well as those who desire to learn something of the advances being made in chemistry and pharmacology, few recent books will prove of more interest than this volume by Barger.

No other important drug has offered so many difficulties to the chemist, pharmacologist, and pharmaceutical manufacturer as has ergot. It is only recently, and largely through the work of Barger and his associates, that the active constituents of ergot have been isolated. The most characteristic and important of these are ergotoxin, discovered by Barger, and another closely allied alkaloid, ergotamine, discovered by Stoll; a brand of the latter ("Gynergen") is described in New and Non-official Remedies. The alkaloid has the property of stimulating the motor endings of sympathetic nerves, and, in large doses, of paralyzing them. It causes contractions of the guinea-pig uterus in a dilution of 1 to 200,000,000. It is used in obstetrics in doses of 0.25 mgm. (intramuscularly) and 1 mgm. (orally).

Other very active compounds found in ergot by Barger and his associates are histamine (originally called ergamine) which is believed to be involved in many reactions of the blood vessels, and perhaps in surgical shock, and which has assumed some importance as a diagnostic agent; and acetylcholine, perhaps the most powerful blood-pressure lowering agent known (as had been found by Hunt experimenting with a synthetic preparation made by himself). Ergosterol, discovered in ergot many years ago by Tanret, has been found to be the parent substance of the extraordinarily active and valuable anti-rachitic vitamin.

There is an interesting chapter on ergotism, a poisoning by ergot caused by eating bread made from infected rye and which for perhaps a thousand years was one of the "Plagues" of Europe and which has also occurred in the United States; the chapter on this subject in some of the popular textbooks on medicine will require radical revision in the light of the work of Barger and his associates. The final chapter deals with the pharmaceutical preparations, the methods (chiefly biological) by which their activity is determined and by which the drug may be detected in cases of poisoning or malpractice.

There is a bibliography of forty-three pages.